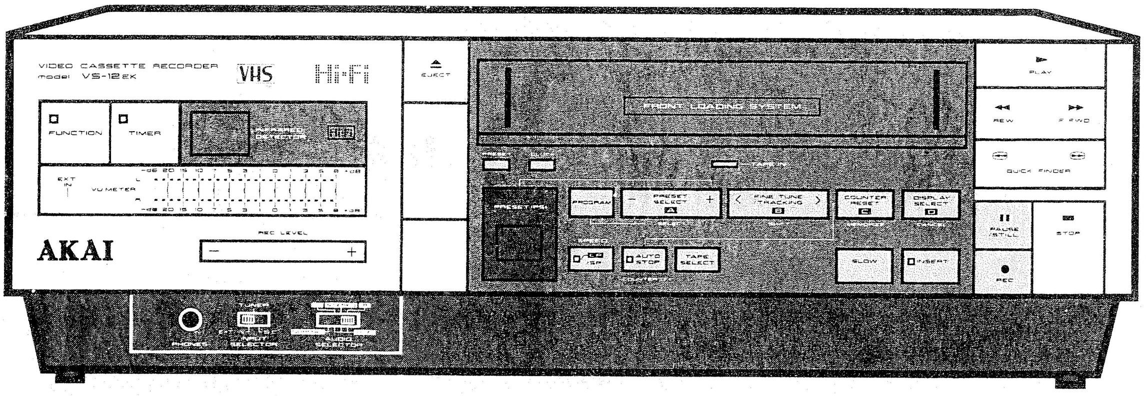
AKAI SERVICE MANUAL

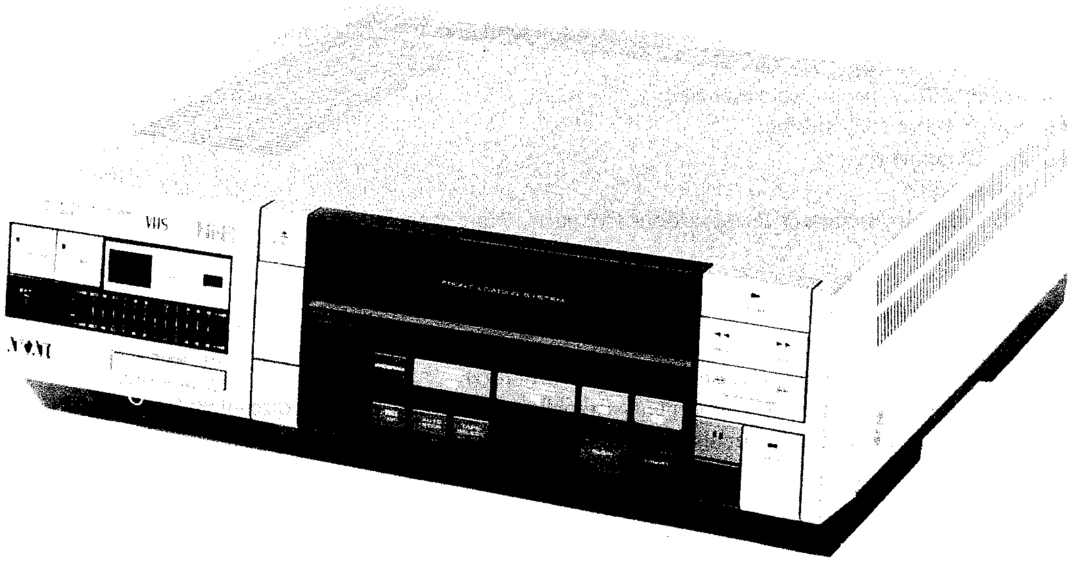

VIDEO CASSETTE RECORDER
model VS-12EK
VHS
Hi-Fi
FUNCTION
TIMER
EXT IN
VU METER
REC LEVEL
AKAI
TUNER
PHONES
INPUT SELECTOR
AUDIO SELECTOR
EJECT
FRONT LOADING SYSTEM
TAPE IN
PRESET/PSL
PROGRAM
PRESET SELECT
A
FINE TUNE /TRACKING
B
COUNTER RESET
C
DISPLAY SELECT
D
LP /SP
AUTO STOP
TAPE SELECT
SLOW
INSERT
PLAY
REW
F FWD
QUICK FINDER
PAUSE /STILL
STOP
REC

HIFI VIDEO CASSETTE RECORDER

MODEL VS-12 EG/EK

ABBREVIATIONS FOR SERVICE MANUAL
MODEL VS-12EG/EK

ABBREVIATION	EXPLANATION	ABBREVIATION	EXPLANATION
AC	Alternating Current	LED	Light Emitting Diode
ACC	Auto Color Control	LM	Loading Motor
A/C	Audio and Control	LP	Long Play
ADJ	ADJust (ment)	LPF	Low Pass Filter
AFC	Auto Frequency Control	LSW	Loading SWitch
AFT	Auto Fine Tuning	ME-SECAM	Middle East SECAM
AGC	Auto Gain Control	MI-COM	MIcro COMputer
AH(P)	Audio Head (Play Back)	MM	Mono-stayble Multi
AH(R)	Audio Head (Record)	MRS	Motor ReverSe
AL	ALl	NG	Noise Gate
ALC	Auto Level Control	NON-LIN	NON-LINear
ANT	ANTenna	N.T.S.C.	National Television System Comittee
APC	Automatic Phase Control	O MUTE	Output MUTE
ASSY	ASSemblY	OSC	OSCillator
BAL	BALance	PAL	Phase Alternation Line
B/C	Buzz and Charactor	PB	Play Back
B DOWN	Break DOWN	P-COM	Phase-COMparator
BGP	Burst Gate Pulse	PG	Pulse Generator
BLK	BLacK or BLock	PL, PLG	PLunger (PLunGer)
BM	Balanced Modulator	PRG	PRoGram
BPF	Band Pass Filter	P & S	Power supply & System control
BS	Band Select	PWR	PoWeR
BU	Back Up	Q	Quality factor
B/W	Black and White	RC	Rotary Control
CCIR	Comité Consultatif International des Radio Communications	REC	RECord
		REF	REFerence
CH (Ch.)	CHannel (Channel)	REF-V	REFerence Vertical signal
CK	Color Killer	REG	REGulator
CLK	CLocK	REV(REVW)	REView (REVieW)
CLP	CLiP	REW	REWind
CM	Capstan Motor	RFB	Radio Frequency Booster
CN	CoNnector	RM	Reel Motor
COMP	COMParator	RM PWR	Reel Motor PoWeR
Comp	Comparison	RSSW	Record Safety SWitch
C or R	Cue or Review	RST (RES)	ReSeT (RESet)
CSW	Cassette SWitch	S	Sensor, Shield
CTL	ConTroL	S CLK	Serial CLocK
CUE	CUE	S & A	Servo & Audio
CW	Carrier Wave	SECAM	Séquentiel à Memoire
DAC	Digital to Analog Converter	SEP (SEPA)	SEParator (SEPArator)
DC	Direct Current	SFP	Sync Front Pulse
DEMOD	DEMODulator	S & H	Sample and Hold
DET	DETect (DETector)	SP	Standard Play
DL	Delay Line	SPD	SPeeD
DM	Drum Motor	SRP	Supply Reel Pulse
DOC	Drop Out Compensator	SRV	SeRVo
EE	Electronic to Electronic	SW	SWitch
EF	Emitter Follower	SW'NG	SWitchiNG
EM	Eject Motor	SWP	SWitching Pulse
EMPHA	EMPHAsis	SYNC	SYNChronize
ENV IN	ENVelope INput	TPZ (TRAPE)	TraPeZoid (TRAPEzoid)
ESW	Eject SWitch	TRK	TRacKing
EQ	EQualizer	TRP	Take up Reel Pulse
FE	Full track Erase	T/U	Take Up
FF	Flip-Flop	TV	TeleVision
FG	Frequency Genelator	UHF	Ultra High Frequency
Fig.	Figure	UNR	UNRegulated
FM	Frequency Modulation	V	Vertical
Fo	resonance Frequency	VCO	Voltage Controlled Oscillator
FREQ	FREQuency	VF	Voltage for Fine tuning
FSI	Field Start Inhibit	VHF	Very High Frequency
FST		VHS	Video Home System
GND	GrouND	VID	VIDeo
H	Horizontal	VIDEO-J	VIDEO Judge
HP	Horizontal (sync) Pulse	VIF	Video Intermediate Frequency
HPF	High Pass Filter	VJ	Video Judge
HT	HeaTer	VM	Voltage for Memory
IC	Integrated Circuit	VOB	Video On Blank
ID	IDentification	VOW	Video On Word
IDL	IDLe (Voltage)	VP	Vertical (sync) Pulse
INS	INSert	VT	Voltage for Tuning
INV	INVerter	WHT	WHiTe



HIFI VIDEO CASSETTE RECORDER

MODEL VS-12 EG/EK

SECTION 1 OPERATING MANUAL 3
SECTION 2 SERVICE MANUAL.. 35
SECTION 3 PARTS LIST 73
SECTION 4 SCHEMATIC DIAGRAM/PC BOARDS

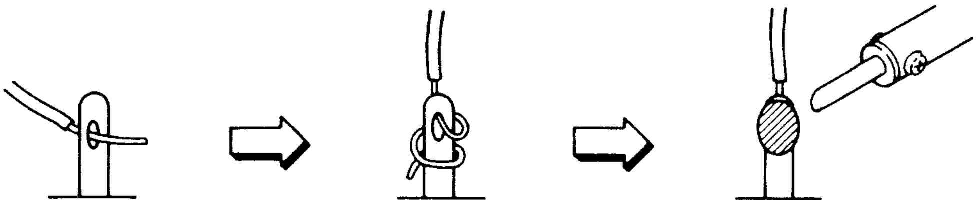
SAFETY INSTRUCTIONS

SAFETY CHECK AFTER SERVICING

Confirm the specified insulation resistance between power cord plug prongs and externally exposed parts of the set is greater than 10 Mohms, but for equipment with external antenna terminals (tuner, receiver, etc.) and is intended for $\boxed{C}$ or $\boxed{A}$, specified insulation resistance should be more than 2.2 Mohms (ground terminals, microphone jacks, headphone jacks, line-in out jacks etc.).

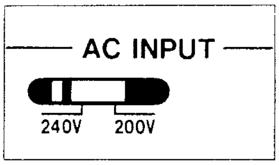
PRECAUTIONS DURING SERVICING

1. Parts identified by the ⚠ symbol parts are critical for safety.
   Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with specified replacements.
   Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
4. ·Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers (Insulating Barriers)
   4) Insulation sheets for transistors
   5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.

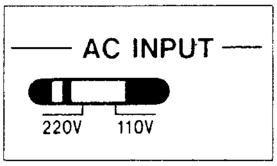


6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

VOLTAGE CONVERSION



VS-12EK



VS-12EG

Power requirements for electrical equipment differ from area to area.
The operation voltage of each model is preset according to its destination as indicated below.
VS-12EK .... 240V (ENGLAND), 200V (HONGKONG)
VS-12EG 220V
Before connecting, check that the AC INPUT selector on the rear panel is set to the voltage for your area:
If the AC INPUT is not set for your area:
1) Confirm that the POWER Switch on the rear panel is set to OFF. (The POWER Switch Knob is out.)
2) Confirm that the POWER Cord is disconnected.
3) Move the AC INPUT selector with a screwdriver so that the marker is above the voltage for your area.

CYCLE CONVERSION

With DC MOTOR, CYCLE CONVERSION is not necessary.

SECTION 1

OPERATING MANUAL

TABLE OF CONTENTS

LET'T GET ACQUAINTED WITH THE AKAI VS-12 WITH THE INTERACTIVE MONITOR SYSTEM 4
MAKING THE RIGHT CONNECTIONS 6
  TO PRODUCE HIFI STEREO SOUND 6
  TO PRODUCE HIFI STEREO SOUND IN RECORDING AND PLAYBACK 6
LET'S CHECK THE REAR PANEL OF THE AKAI VS-12 7
TUNING THE TV TO THE VIDEO CHANNEL 8
  TUNING OPERATION 8
  SHOULD THE TIME DISPLAY AND A TV PROGRAM OVERLAP 9
LET'S SET THE TIMER TO THE ACTUAL TIME 10
  ON THE CLOCK SET DISPLAY 10
  IF YOU WANT TO CONFIRM THE ACTUAL TIME AND DATE 12
  IF YOU WANT TO RESET THE ACTUAL TIME AND DATE 12
ON THE REMOTE CONTROL UNIT RC-T12 13
  HOW TO LOAD THE BATTERIES FOR THE AKAI RC-T12 13
  THINGS TO KNOW ABOUT VIDEO CASSETTE TAPES 13
LET'S PLAY A PRE-RECORDED TAPE 14
  TRACKING CONTROL 14
  QUICK FINDER 14
  SLOW MOTION 14
  STILL PICTURE PLAYBACK 15
  AUTO STOP 15
USING THE DISPLAY SELECT BUTTON 16
  ON THE TAPE SELECT BUTTON 16
LET'S LOOK AT THE PRESET STATION DISPLAYS OF THE AKAI VS-12 17
  ON THE PRESET STATION DISPLAY 17
  ON THE TAPE SPEED SELECTOR 17
PRESETTING THE AKAI VS-12 WITH TV STATIONS 18
ADDITIONAL PRESET STATION OPERATIONS 20
  IF YOU WANT TO CHANGE A PRESET TV STATION NAME 20
  IF THE PICTURE FROM A PRESET TV STATION IS NOT CLEAR 20
  IF YOU WANT TO CANCEL A PRESET TV STATION 21
  TV SEARCH IS CARRIED OUT IN THIS ORDER 21
HIFI VHS AUDIO RECORDING AND PLAYBACK 22
  ON THE AUDIO AND INPUT SELECTORS 22
  ON THE SIMULCAST FEATURE 22
LET'S RECORD A TV PROGRAM 23
INSERT RECORDING 24
LET'S LOOK AT THE PROGRAMMING DISPLAY OF THE AKAI VS-12 25
HOW TO PROGRAM THE AKAI VS-12 FOR AUTOMATIQUE RECORDING 26
LET'S PREPARE THE AKAI VS-12 FOR AUTOMATIQUE RECORDING 28
  IF YOU WANT TO CONFIRM A PROGRAM 29
  TO CANCEL A PROGRAM AFTER IT HAS BEEN MEMORIZED 29
  IF YOU WANT TO RECALL A FINISHED OR CANCELLED PROGRAM 29
  TO RESET A PROGRAM AFTER IT HAS BEEN MEMORIZED 30
AN EXAMPLE OF 4-WEEK TIMER SETTING 31
SLEEP TIME SETTING 32
  ON THE SLEEP TIMER DISPLAY 32
EXPANDING YOUR HOME VIDEO CENTRE 33
FINAL NOTES 33

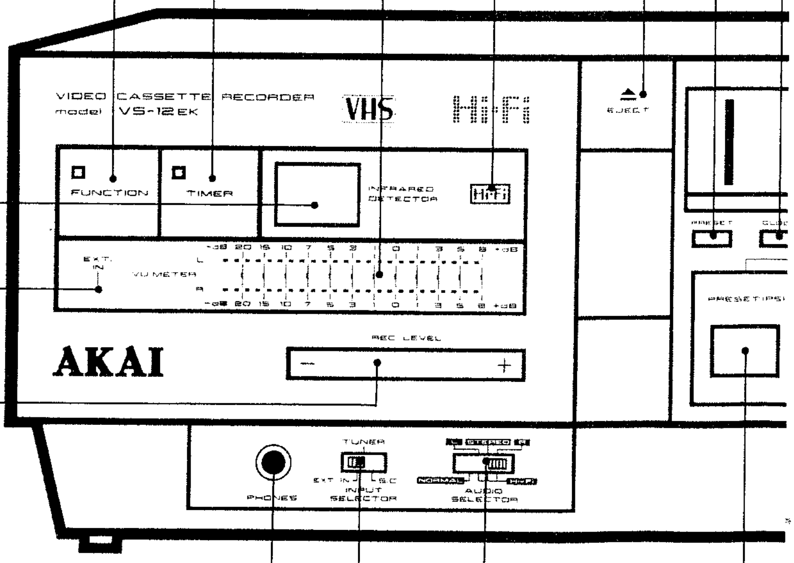
Let's get acquainted with the Akai VS-12 with the

On the warning buzzer

The Akai VS-12 is equipped with a warning buzzer which sounds under the following situations:

- When the VS-12 is plugged in or the POWER button is turned on;
- When any of the operating buttons is depressed while there is no video cassette tape inside;
- At the end of the tape; or right before the rewind operation ends.
- When the tape stops at "0000" (AUTO STOP);
- When a video cassette tape with its recording defeat tab broken is inserted and the REC (●), or INSERT buttons are depressed.

Note: The built-in tuner of the Akai VS-12 is a conventional and not a Stereo/Bilingual type.


VIDEO CASSETTE RECORDER
model VS-12EK
VHS
Hi-Fi
EJECT
FUNCTION
TIMER
INFRARED DETECTOR
Hi-Fi
EXT. IN
VU METER
L
R
REC LEVEL
AKAI
PHONES
TUNER
EXT IN
S.C
INPUT SELECTOR
NORMAL
STEREO
AUDIO SELECTOR

Tells you the AUDIO SELECTOR is set to HI-Fi
Hi-Fi indicator

For visually monitoring adjustments to the Hi-Fi recording volume
VU bar meter. See p.23

To stand by for automatic recording.
(TIMER button) See p.29

To turn on and off the Akai VS-12.
(FUNCTION button) See p.9

To receive the remote control signal from the Akai Wireless Remote Control Unit RC-T12
* Keep this window clean for remote control operation. See p.14

Indicates the Audio selector is set to EXT IN.

To control the volume of the recording being made by the VS-12.
REC LEVEL control. See p.23

To connect headphones
PHONES jack

To select the EXT IN, TUNER, or S.C. audio input
INPUT SELECTOR See p.23

To select NORMAL (mono), STEREO Hi-Fi, or seperate channel recording and playback
AUDIO SELECTOR See p.23

Preset channel number display.
(PRESET Display)

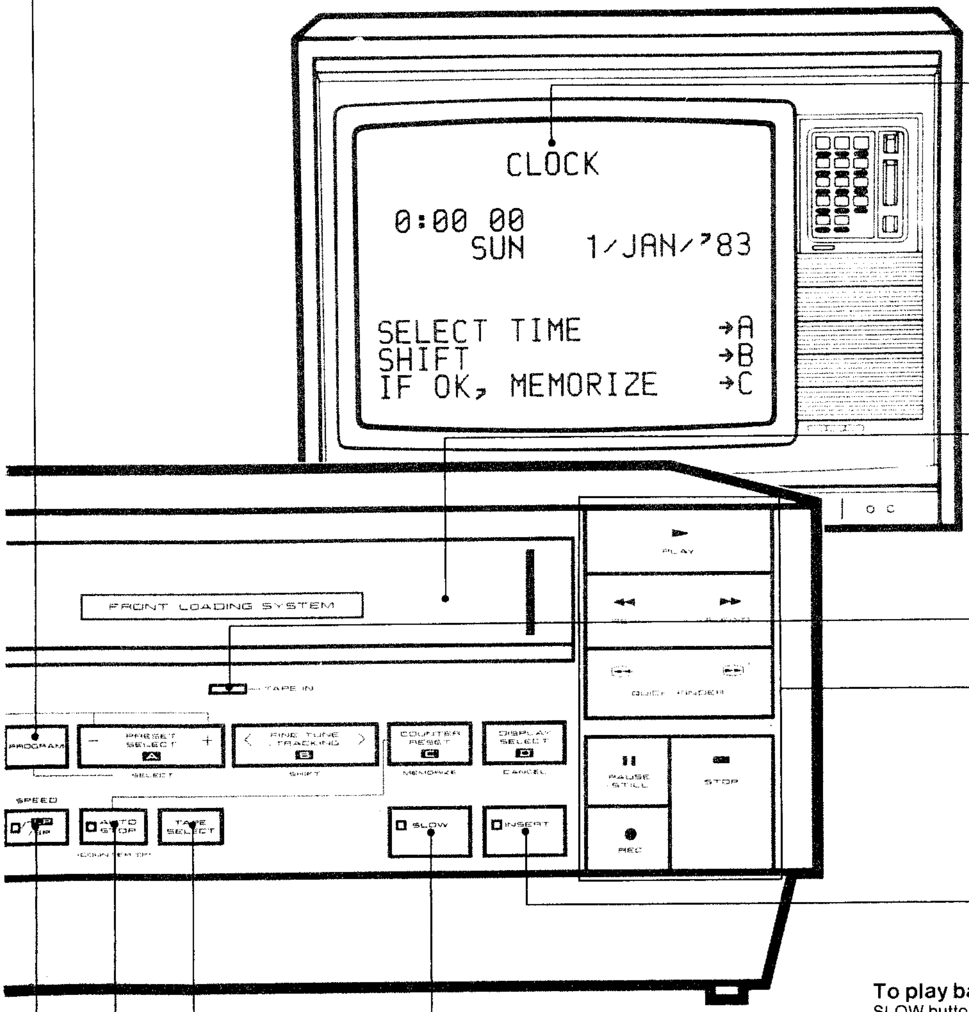
Interactive Monitor System

To eject the video cassette tape.
(EJECT button) See p.16

To tune in TV stations.
(PRESET button) See p.18

To set the actual time and date.
(CLOCK button) See p.11-12

To automatically record a TV program.
(PROGRAM, A, B, C, and D buttons) See p.26


CLOCK
0:00 00
SUN 1/JAN/'83
SELECT TIME →A
SHIFT →B
IF OK, MEMORIZE →C
FRONT LOADING SYSTEM
TAPE IN
PLAY
QUICK FINDER
PROGRAM
PRESET SELECT
A
SELECT
FINE TUNE TRACKING
B
SHIFT
COUNTER RESET
C
MEMORIZE
DISPLAY SELECT
D
CANCEL
SPEED
AUTO STOP
TAPE SELECT
SLOW
INSERT
PAUSE STILL
STOP
REC

DISPLAY

Load the video cassette tape here.

Indicates a tape is loaded

To run the tape for recording or playback.
Tape transport buttons

To insert a new picture
Insert recording See p. 25

To play back at slow speed
SLOW button See p. 15

To select the video cassette tape's reel hub size.
TAPE SELECT button See p.17

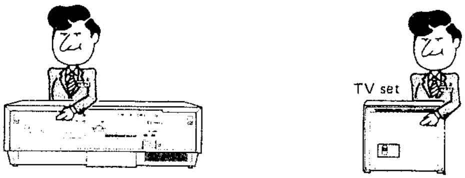
To quickly return to a selection.
(AUTO STOP button) See p.16

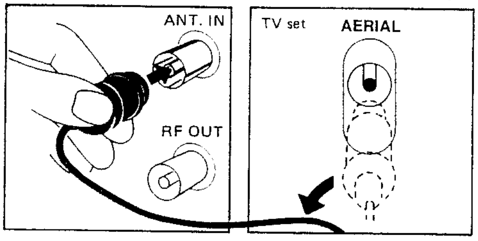
To select the tape speed.
(SPEED selector) See p.18

Making the right connections

There is a tuner inside your Akai VS-12 for station selection. This tuner is just like the tuner inside your TV. For this reason, your TV antenna must be connected to the Akai VS-12.

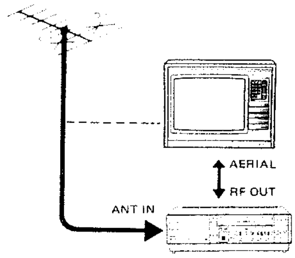
* All the connections are made to the jacks at the rear of the Akai VS-12.

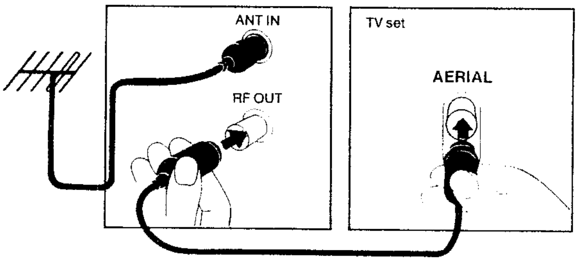




1

Unplug the TV antenna cable from your TV and plug it into the antenna input jack (ANT. IN) of the Akai VS-12.





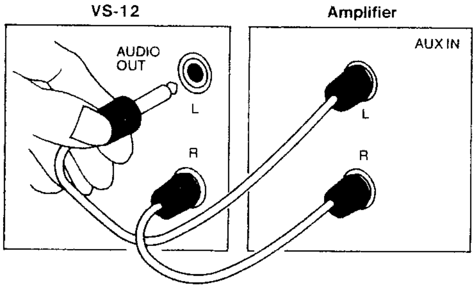
2

Plug one end of the aerial cable supplied into the RF OUT jack of the Akai VS-12 and plug the other end into the aerial jack of your TV.

* The cable can only be connected one way.

To produce Hi-Fi stereo sound:

The VS-12 requires connection to an audio amplifier for playback and recording of Hi-Fi stereo sound.



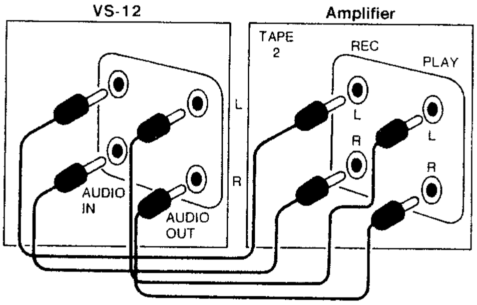
3

Connect the AUDIO OUT jacks of the VS-12 (left and right), to the amplifiers AUX IN jacks (left and right)

This connection allows you to playback Hi-Fi pre-recorded VHS tapes.

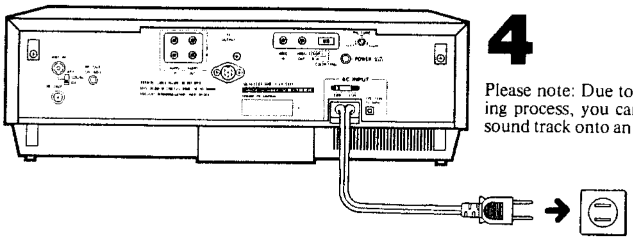
To produce Hi-Fi stereo sound in recording and playback:

If your amplifier is equipped with two sets of tape input and output jacks:



Connect the AUDIO OUT jacks of the VS-12 (left and right), to the amplifiers TAPE 2 PLAY jacks (left and right).
Connect the AUDIO IN jacks of the VS-12 (left and right), to the amplifiers TAPE 2 rec jacks (left and right).

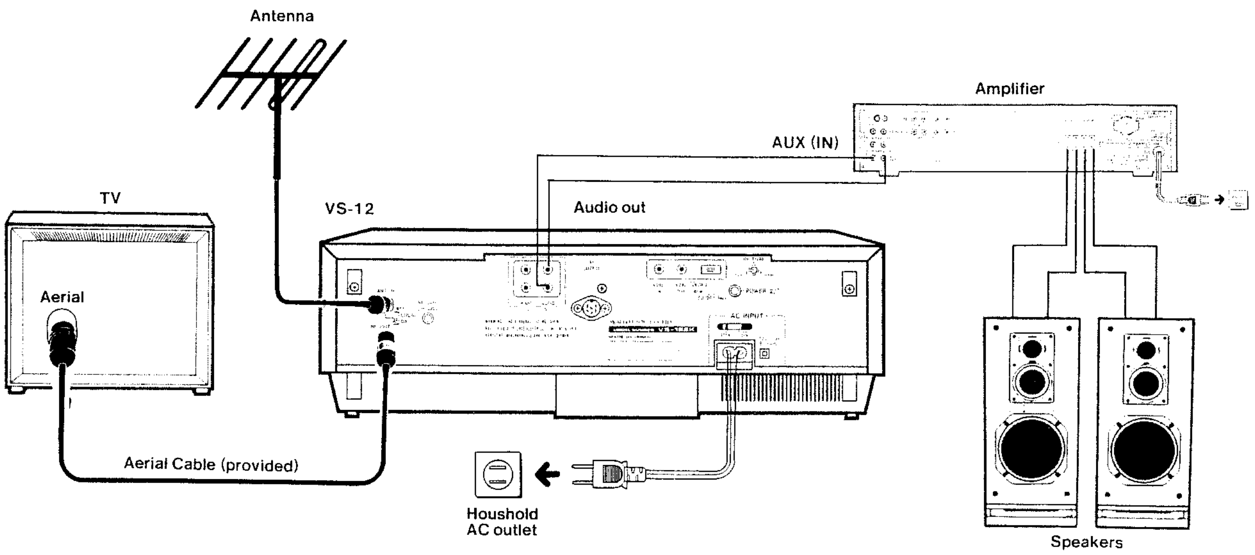
This connection allows you to record Hi-Fi stereo sound from any component connected to the amplifier, i.e. tuner, CD, turntable, etc.



4

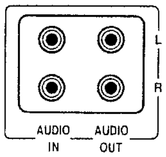
Plug the power cord into the AC INPUT jack of the Akai VS-12 and plug the other end into a household AC outlet.

Please note: Due to the nature of the Hi-Fi recording process, you cannot sound dub (record a new sound track onto an old video tape).

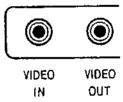


Basic overall view

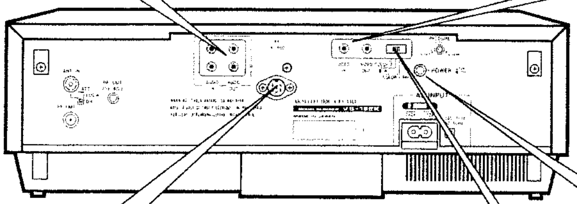
Let's check the rear panel of the Akai VS-12

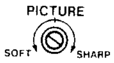


AUDIO jacks
These jacks allow you to connect the VS-12 to an external audio hi-fi source such as an amplifier to which has been connected a stereo cassette deck, CD player, turntable or tuner. This will enable you to enjoy Hi-Fi sound with your VS-12, or record a new audio sound track on to home movies by recording the video portion from another VCR, and the audio portion from a source connected to the VS-12's AUDIO jacks.

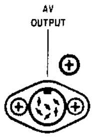


VIDEO jacks
Connect the VIDEO IN jack of the VS-12 to the VIDEO OUT jack of another VCR to make a new recording on the VS-12. You can also use the VIDEO OUT jack for direct connection to a TV or TV Monitor's LINE IN jacks for better video reception.





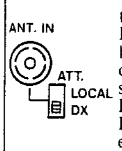
- **To adjust the picture quality**
Use the PICTURE control on the rear panel to adjust the picture quality (sharpness) to suit your taste.
The control should normally be set to its center position.



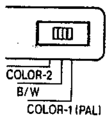
AV JACK
If you use an exclusive AV connection cable (available on the market) connect the TV's AV jack to the VS-12's AV output jack.
If the TV has a stereo amplifier, the playback sound will be in stereo if you play a tape recorded in stereo. (RF output of VS-12 is monaural.) Direct connection through AV jack will improve picture and sound quality.

POWER
ON
OFF

POWER switch
In regular use, the POWER switch should be left ON (▬). This is because power must be maintained to the antenna signal booster and the moisture prevention circuit inside the Akai VS-12. Leaving the POWER switch ON will have no effect on TV viewing. The TV can be turned on and off independently.

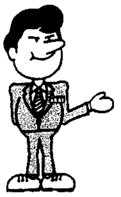


On the LOCAL/DX attenuator switch
The LOCAL/DX switch on the rear panel of the VS-12 is used to adjust the signal reception of the tuner section.
If the picture or display characters develop wavy lines during reception of a local TV station broadcast, it may be that the signal reception is too strong. In that case, move this selector to the LOCAL position to attenuate the signal strength.
If TV reception during a broadcast by satellite, for example, is poor and contains too much picture "noise", set this switch to the DX position to improve the picture reception.
(Normally, leave this switch in the DX position.)



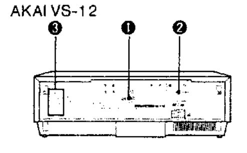
Video mode selector
The video mode selector is used to select the type of signal to be recorded or played back.
This selector should normally be set to COLOR-1 (PAL).

COLOR-2	Set to this position for Middle East SECAM (system B/G) color system recording or play back.
B/W	Set to this position for CCIR standard monochrome system recording or playback.
COLOR-1	Set to this position for PAL color (PAL) system recording or playback.

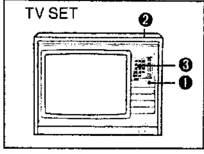


Tuning the TV to the video channel

Check before starting

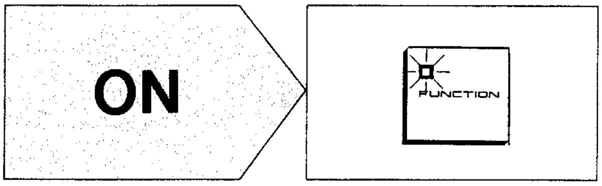


❶	Power cord is connected to the household AC outlet.
❷	POWER switch is set to ON.
❸	All the components are properly connected.

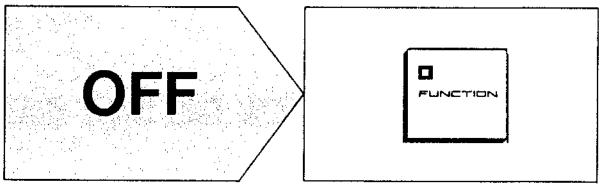


❶	Turned on.
❷	Properly connected.

Depress the FUNCTION button to turn on the Akai VS-12.
- * Its indicator will light.



Depress the FUNCTION button again to turn off the Akai VS-12.
- * Its indicator will go off.
- * The timer inside the Akai VS-12 will continue to function.



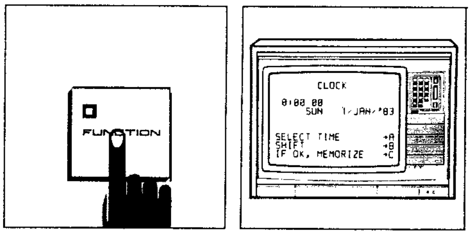
Caution

Moving the video tape recorder from a cold place to a warm place, or using it in a humid place will cause dew condensation on the drum and the video heads inside the unit. If recording or playback is carried out in this state, the heads may become dirty and the tape may be damaged. This could also result in malfunction of the machine itself.

To prevent this from occuring, the rear panel main power switch must be turned on for about one hour before starting recording or playback of a video cassette tape.
This is particularly important when a video cassette is inserted for the first time after purchase of the video cassette recorder.

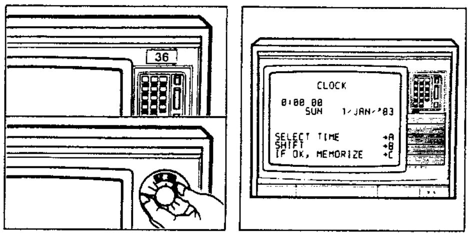
Tuning operation

The Akai VS-12 sends out a signal similar to that transmitted by a TV station. By tuning your TV (to the video channel) to receive this signal, you can select programs from the Akai VS-12 as you would select a program with the TV's channel selector. Whereas a TV broadcast signal has only one strong point of reception, the signal from the VS-12 may be readily visible at two tuning points. These points are usually located close to each other, and may be separated by a range on the tuning knob during which the picture is still visible but without color.
The correct tuning position should be the only one of the two which also contains the sound.
Please use the following method for best results.



1

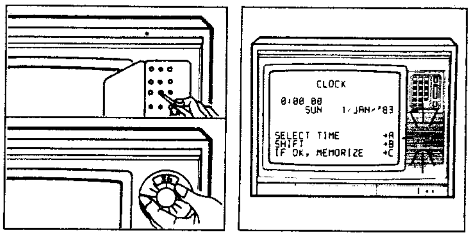
If your TV has an Automatic Frequency Control (AFC), or the Automatic Fine Tuning control (AFT), switch it off. (On some TV's this is done automatically when the control panel door is opened.)
Depress the FUNCTION button of the VCR to send the signal for time setting to the TV. The VS-12 will also send an audible tone to the TV. These will be your guides for fine tuning to the video channel.



2

If your TV has a synthesizer type tuner, set it to channel 36, or rough adjust until a picture (the time information) is obtained in the neighbourhood of channel 36 for non-synthesizer (continuous tuning) types.

Note:
If the TIME display will not clear up (remains distorted), it may be due to some interference from the antenna. In that case, try disconnecting the antenna cable, and reconnect it after step 3.
If the display characters are distorted after reconnecting the antenna, try changing the position of the LOCAL/DX switch on the back of the VS-12.

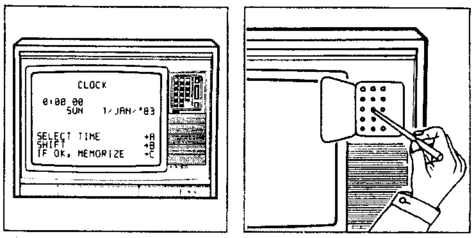


3

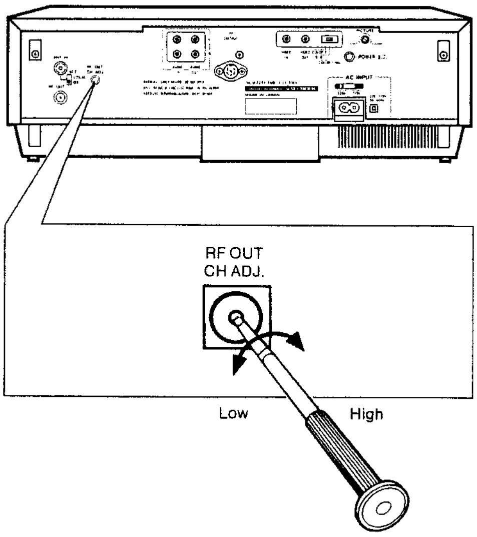
Fine tune the TV to optimize the picture quality. Be sure that the tone signal is clearly audible.
After completing this operation with the best picture possible, turn the AFT or AFC back on and check that there is no significant deterioration of the picture.

Should the time display and a TV program overlap:

UHF channel 36 is being used for broadcasting by a TV station in your area. In that case, your TV must be set to an unused channel between UHF 30 and 39.



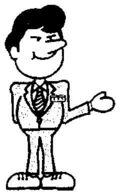
TV
If channel 36 is being used for broadcasting, adjust the TV channel selector a little at a time until the TV screen goes blank. (Set it towards a higher or lower station.)



Akai VS-12
Adjust the RF converter a little at a time with a screwdriver until the display appears clearly on the TV screen.
- * If the channel selector was set higher, set the RF converter towards high. The same thing applies if the channel selector was set lower.

NOTE:
Video channel setting range is from UHF channel 30 to 39.

Now you are ready to watch prerecorded tapes. Or, choose a station for TV reception from the Akai VS-12, by following the presetting operations on p. 19—20.



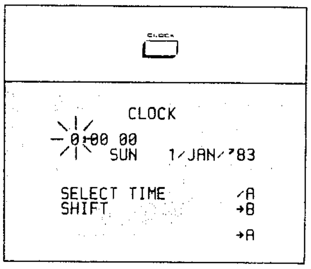
Let's set the timer to the actual time

There is a 24 hour digital timer inside the Akai VS-12. To set this timer to the actual time, please follow this procedure, using as an example: 12:30 mon 3/SEP/'84.

1

Depress the CLOCK button to display the information for setting the time to the actual time on your TV screen.

* Skip this step if the information is already displayed on the TV screen.

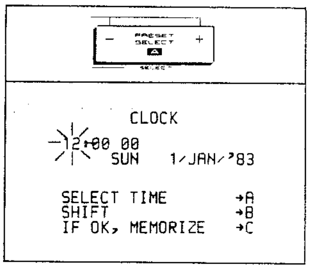


```
       CLOCK
0:00 00
   SUN    1/JAN/'83

SELECT TIME       /A
SHIFT             →B
                  →A
```

2 HOURS

To follow the instruction "SELECT TIME → A", depress the − A + button to select the correct hours.

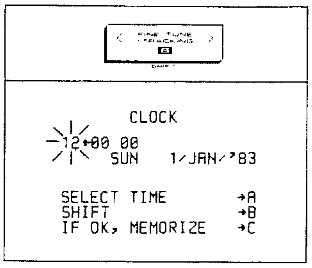
0, 1, 2, ... up to 23



```
        CLOCK
12:00 00
   SUN    1/JAN/'83

SELECT TIME        →A
SHIFT              →B
IF OK, MEMORIZE    →C
```

3

To follow the instruction "SHIFT → B", depress the < B > button to shift to the next item to be set: minutes.

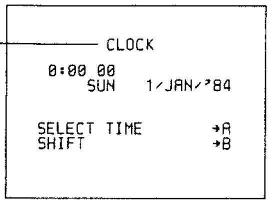


```
        CLOCK
12:00 00
   SUN    1/JAN/'83

SELECT TIME        →A
SHIFT              →B
IF OK, MEMORIZE    →C
```

Are you ready?
LET'S START

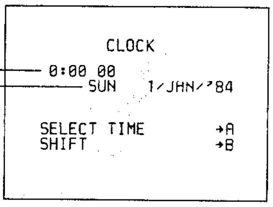
On the Clock set display

This tells you that this display is for setting the timer to the actual time.



```
        CLOCK
0:00 00
   SUN    1/JAN/'84

SELECT TIME        →A
SHIFT              →B
```

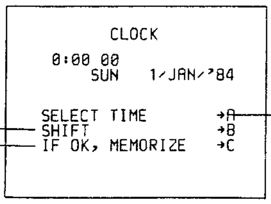
This tells you the time in 24 hour notation.



```
        CLOCK
0:00 00
   SUN    1/JAN/'84

SELECT TIME        →A
SHIFT              →B
```

The left indication tells you the day of the week and the right indications tell you the date/month/year.

This is instructing you to depress the < B > button when you want to reset the actual time and date.



```
        CLOCK
0:00 00
   SUN    1/JAN/'84

SELECT TIME        →A
SHIFT              →B
IF OK, MEMORIZE    →C
```

This is instructing you to depress the C button to choose the item to be set. The chosen item will flash on and off.

This is instructing you to depress the − A + button to select the indication for the flashing item.

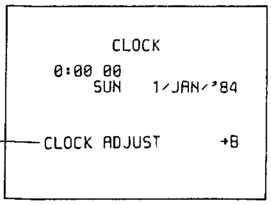
"SELECT TIME" will be displayed when you are to select the correct time.

"SELECT DAY" will be displayed when you are to select the correct day of the week.

"SELECT DATE" will be displayed when you are to select the correct day of the month.

"SELECT MONTH" will be displayed when you are to select the correct month.

"SELECT YEAR" will be displayed when you are to select the correct year.



```
        CLOCK
0:00 00
   SUN    1/JAN/'84

CLOCK ADJUST       →B
```

This is instructing you to depress the < B > button when you are satisfied with the indications you have set.

On the − A + and < B > buttons

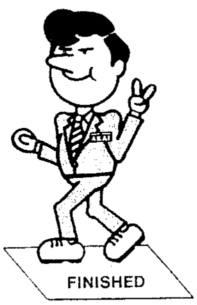
− A + button:
The − A + button is used to select the indication for the flashing item chosen by the − A + button.

- + side: Depress this side when you want to increase the indication.
- − side: Depress this side when you want to decrease the indication.

Holding down either side will change the indication continuously.

< B > button:
The < B > button is used to choose the item you want to set. The chosen item will flash on and off.

- <side: Depress this side when you want to set an item which is after the item that is now flashing.
- \>side: Depress this side when you want to set an item which is before the item that is now flashing.



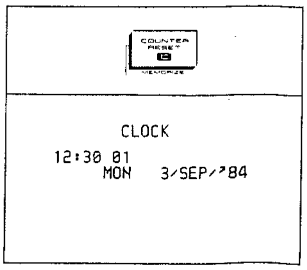
13 MEMORIZE

You have now correctly set the timer to the actual time.

To follow the instruction "IF OK, MEMORIZE → C", depress the C button to memorize the data.

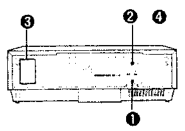
* The timer will start keeping time.

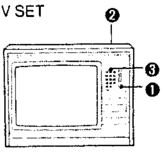
The full display is maintained for approximately 3 seconds. To recall the time see page 13.



```
        CLOCK
12:30 01
    MON   3/SEP/'84
```

Check before starting

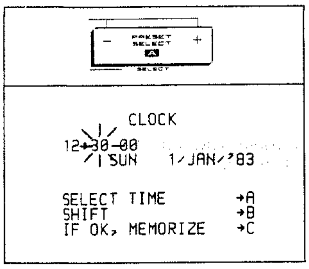
AKAI VS-12		
	❶	Power cord is properly connected to the household AC outlet.
	❷	POWER switch is set to ON.
	❸	All the components are properly connected.
	❹	FUNCTION button is turned on.

TV SET		
	❶	Turned on.
	❷	Properly connected.
	❸	Set to the video channel.

4 MINUTES

To follow the instruction "SELECT TIME → A", depress the − A + button to select the correct minutes.

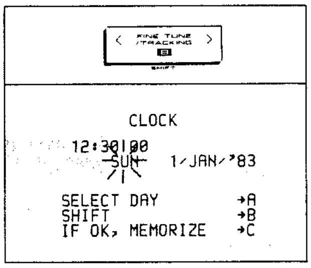
00, 01, 02, ... up to 59


−
PRESET SELECT
+
A
SELECT

```
CLOCK
12:30 00
SUN    1/JAN/'83

SELECT TIME        →A
SHIFT              →B
IF OK, MEMORIZE    →C
```

5

To follow the instruction "SHIFT → B", depress the < B > button to shift to the next item to be set: day of the week.

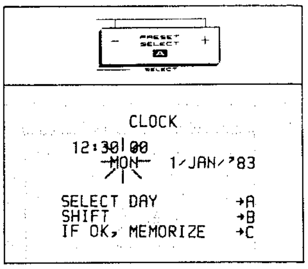

<
FINE TUNE /TRACKING
>
B
SHIFT

```
CLOCK
12:30 00
SUN    1/JAN/'83

SELECT DAY         →A
SHIFT              →B
IF OK, MEMORIZE    →C
```

6

To follow the instruction "SELECT DAY → A", depress the − A + button to select the correct day of the week.

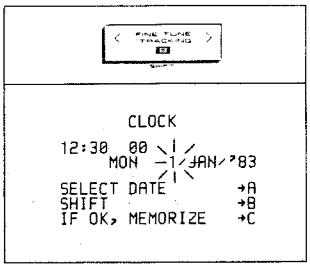
SUN, MON, TUE, WED, THU, FRI or SAT


−
PRESET SELECT
+
A
SELECT

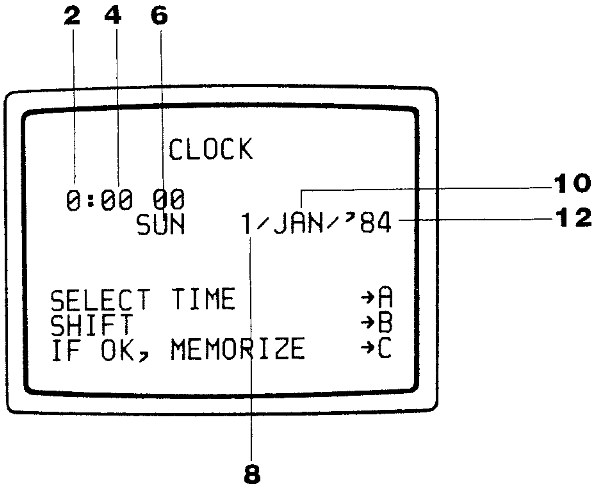
```
CLOCK
12:30 00
MON    1/JAN/'83

SELECT DAY         →A
SHIFT              →B
IF OK, MEMORIZE    →C
```

7 DAY OF WEEK

To follow the instruction "SHIFT → B", depress the < B > button to shift to the next item to be set: date of the month.


<
FINE TUNE /TRACKING
>
B
SHIFT

```
CLOCK
12:30  00
MON   1/JAN/'83
SELECT DATE        →A
SHIFT              →B
IF OK, MEMORIZE    →C
```

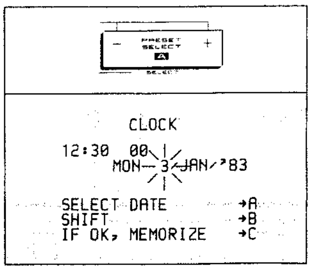


```
CLOCK
0:00 00
  SUN    1/JAN/'84

SELECT TIME        →A
SHIFT              →B
IF OK, MEMORIZE    →C
```

8 DATE OF MONTH

To follow the instruction "SELECT DATE → A", depress the − A + button to select the correct date.

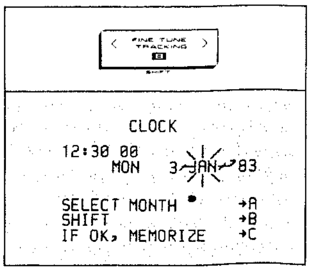
1, 2, 3, ... up to 31


−
PRESET SELECT
+
A
SELECT

```
CLOCK
12:30  00
MON  3/JAN/'83

SELECT DATE        →A
SHIFT              →B
IF OK, MEMORIZE    →C
```

9

To follow the instruction "SHIFT → B", depress the < B > button to shift to the next item to be set: month.

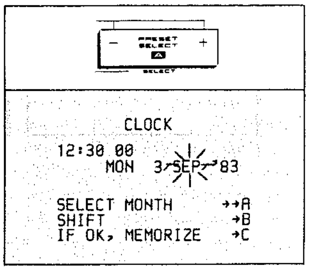

<
FINE TUNE /TRACKING
>
B
SHIFT

```
CLOCK
12:30 00
MON   3/JAN/'83

SELECT MONTH       →A
SHIFT              →B
IF OK, MEMORIZE    →C
```

10 MONTH

To follow the instruction "SELECT MONTH → A", depress the − A + button to select the correct month.

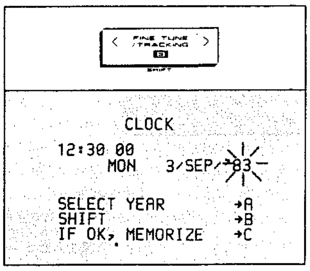
JAN, FEB, MAR ...... or DEC.


−
PRESET SELECT
+
A
SELECT

```
CLOCK
12:30 00
MON   3/SEP/'83

SELECT MONTH       →A
SHIFT              →B
IF OK, MEMORIZE    →C
```

11

To follow the instruction "SHIFT → B", depress the < B > button to shift to the next item to be set: year.

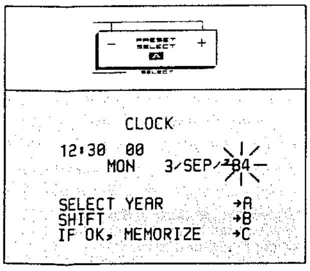

<
FINE TUNE /TRACKING
>
B
SHIFT

```
CLOCK
12:30 00
MON   3/SEP/'83

SELECT YEAR        →A
SHIFT              →B
IF OK, MEMORIZE    →C
```

12 YEAR

To follow the instruction "SELECT YEAR → A", depress the − A + button to select the correct year.

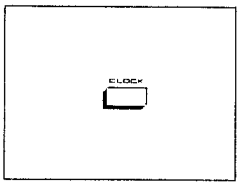
83, 84, 85 .... up to 98

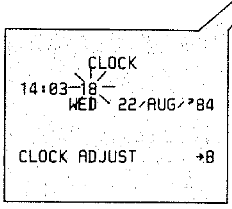

−
PRESET SELECT
+
A
SELECT

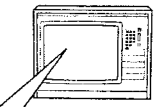
```
CLOCK
12:30 00
MON   3/SEP/'84

SELECT YEAR        →A
SHIFT              →B
IF OK, MEMORIZE    →C
```

If you want to confirm the actual time and date

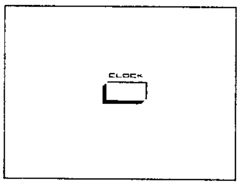
Depress the CLOCK button.




CLOCK
14:03 18
WED 22/AUG/'84
CLOCK ADJUST →B



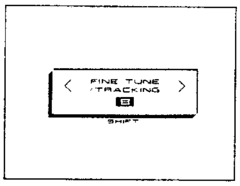
The information on the left will be displayed on your TV screen.

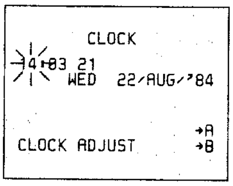


To remove the information from your TV screen, depress the CLOCK button again.

If you want to reset the actual time and date

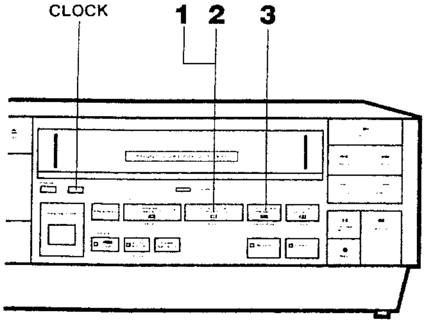
As an example, we will change the date from 22 AUG to 29 AUG.

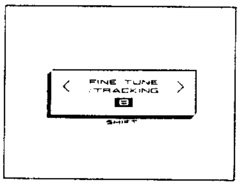


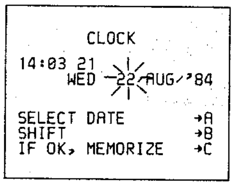

CLOCK
14:03 21
WED 22/AUG/'84
→A
CLOCK ADJUST →B

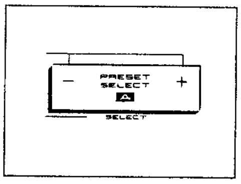
1

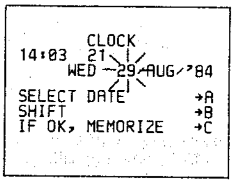
- **Depress the CLOCK button to display the information for resetting the timer to the actual time.**
- **To follow the instruction "CLOCK ADJUST - B", depress the < B > button to display the information for setting the timer to the actual time.**





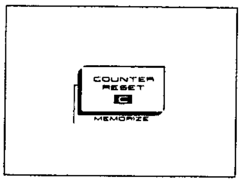

CLOCK
14:03 21
WED 22/AUG/'84
SELECT DATE →A
SHIFT →B
IF OK, MEMORIZE →C

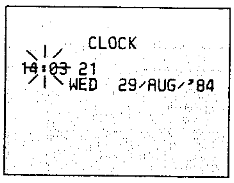



CLOCK
14:03 21
WED 29/AUG/'84
SELECT DATE →A
SHIFT →B
IF OK, MEMORIZE →C

2

To follow the instruction "SHIFT] B", depress the < B > button again and again until the item you want to reset flashes on and off. Then to follow the instruction "SELECT TIME/ DAY/ DATE/ MONTH/ YEAR] A", depress the − A + button to reset the item.
Reset other items in the same manner. After you have reset all incorrect items, go to the next step.




CLOCK
14:03 21
WED 29/AUG/'84

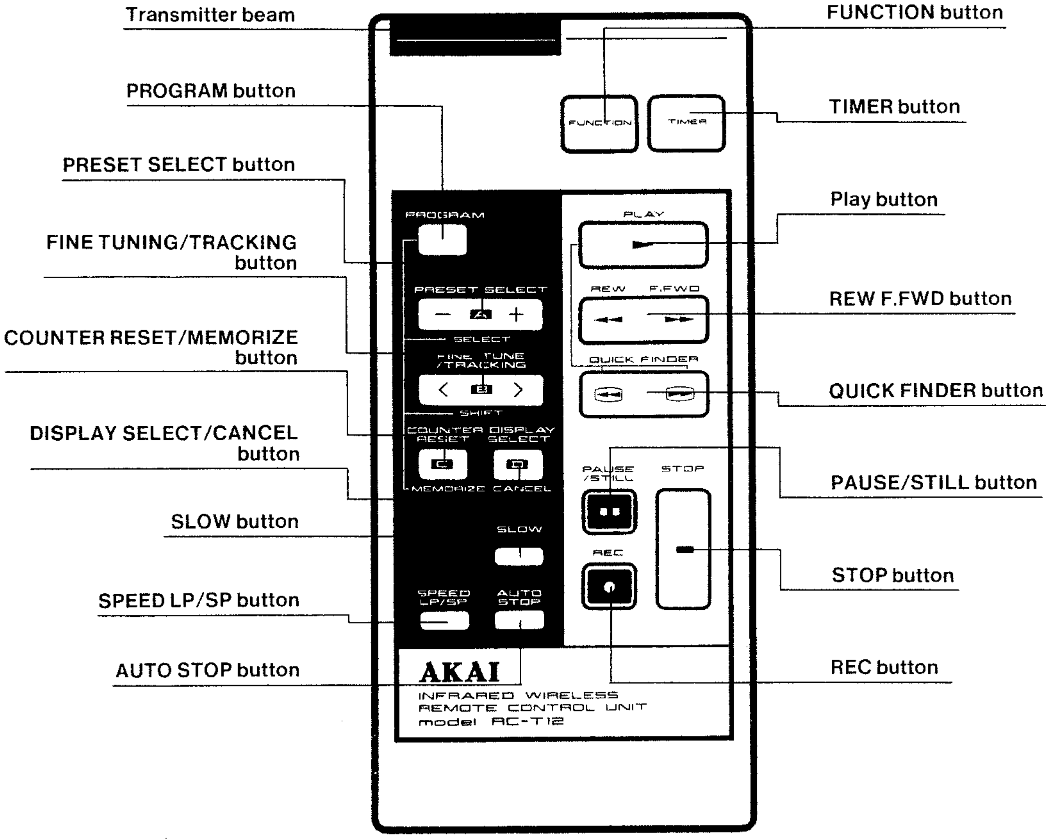
3

Depress the C button to memorize the new data.

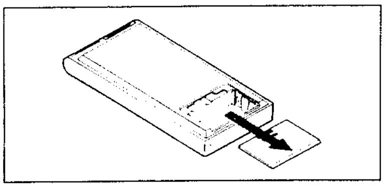
NOTE:
During the procedure for setting the timer to the actual time (previous page), any item can be reset by using the < B > and − A + buttons in the same manner.

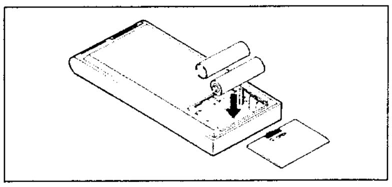
On the remote control unit RC-T12

The operation buttons of the Akai RC-T12 are used the same way as the operation buttons on the front panel of the Akai VS-12 except for the EJECT, CLOCK, PRESET, TAPE SELECT and INSERT buttons which do not appear on the RC-T12.


Transmitter beam
FUNCTION button
PROGRAM button
TIMER button
PRESET SELECT button
Play button
FINE TUNING/TRACKING button
REW F.FWD button
COUNTER RESET/MEMORIZE button
QUICK FINDER button
DISPLAY SELECT/CANCEL button
PAUSE/STILL button
SLOW button
STOP button
SPEED LP/SP button
AUTO STOP button
REC button
FUNCTION
TIMER
PROGRAM
PLAY
PRESET SELECT
REW
F.FWD
SELECT
FINE TUNE /TRACKING
QUICK FINDER
SHIFT
COUNTER RESET
DISPLAY SELECT
MEMORIZE
CANCEL
PAUSE /STILL
STOP
SLOW
REC
SPEED LP/SP
AUTO STOP
AKAI
INFRARED WIRELESS REMOTE CONTROL UNIT
model RC-T12

How to load the batteries for the Akai RC-T12





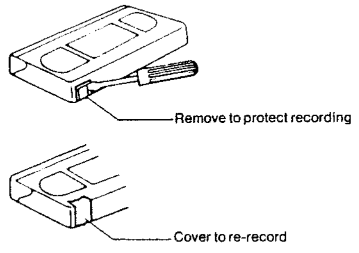
1. **Remove the battery compartment cover.**
2. **Insert two AA, R6 or equivalent size batteries into the battery compartment as shown in the illustration.**
3. **Replace the battery compartment cover.**

NOTE:
When changing the batteries, change all the batteries at the same time.

Things to know about Video cassette tapes

- Only VHS video cassette tapes may be used with the Akai VS-12.
- To protect a recording, remove the recording defeat tab with a screwdriver. To re-record, cover the cavity with a piece of adhesive tape.
- Never touch the tape with your fingers.
- Never open the video cassette tape case.
- Store standing on end in a well ventilated place, away from objects with strong magnetic fields and away from bright lighting.

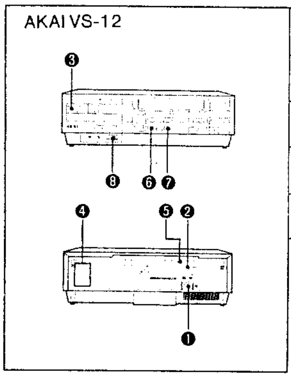
VHS
PAL


Remove to protect recording
Cover to re-record

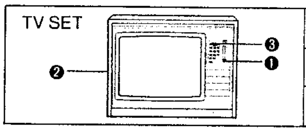
NOTE:
- Before recording or playing back a video cassette tape, be sure to forward the tape slightly so that the leader tape (the transparent part of the tape) is not in the head path.

Let's play a pre-recorded tape

Check before starting



❶	Power cord is properly connected to the household AC outlet.	❻	TAPE SELECT button is set.
❷	Rear panel POWER switch is set to ON.	❼	AUDIO SELECTOR switch is set for the tape in use. See p. 23
❸	FUNCTION button is turned on.	❽	Amplifier is turned on and set to AUX or TAPE.
❹	All the components are properly connected.	❾	
❺	Rear panel Video mode selector is set properly. See p. 8	❿	



❶	Turned on.
❷	Properly connected.
❸	Set to the video channel.

Important

A video cassette tape can be loaded or unloaded only when the Akai VS-12 is turned on.

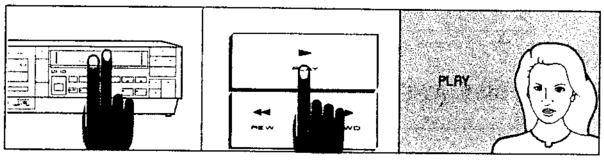
* Confirm that the POWER switch is set to ON (▬) and FUNCTION button is turned ON (its indicator is lit).

Insert the video cassette tape correctly into the cassette loading compartment and give it a little push.

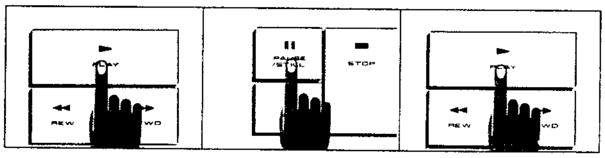
* Follow the markings on the video cassette tape to correctly insert it into the cassette loading compartment. If the video cassette tape is not inserted correctly it will be ejected.

To play the tape, depress the PLAY (▶) button.

* "PLAY" will be displayed on the TV screen for approximately 3 seconds.



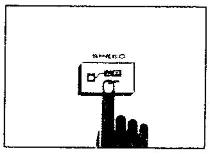
NOTE:
There is a 3 to 4 second delay before playback starts, while the tape moves into position.
If you wish to begin play immediately, prepare the tape by forwarding to the exact point on the tape where you wish to begin play. Depress the PAUSE button (❚❚). When you are ready to begin, depress the PLAY (▶) button again and the tape will start immediately.



Note: To prevent damage to the tape, the VS-12 will automatically switch to the STOP mode after more than 2 min. in PAUSE.

The VS-12 will automatically set the playback speed to correspond with the speed at which the tape was recorded (LP or SP).

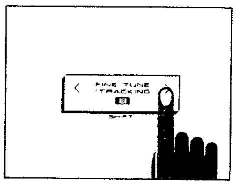
Whenever the end of the tape is reached, the tape will automatically rewind to the beginning. The warning buzzer sounds right before the tape stops.

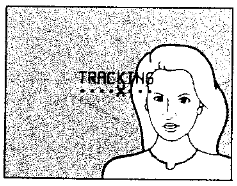


TRACKING control

There may be disturbances in the playback picture. This can occur when you play back a tape recorded with another video cassette recorder. To improve the picture, depress the < ▭ > button.

* The tracking display will appear on the TV screen. The "X" is normally set to center of the tracking display.





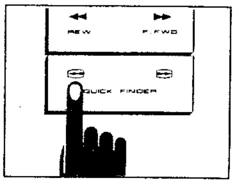
To improve the picture, depress the button on the – or + side. The "X" moves to indicate TRACKING is taking place.

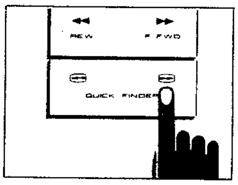
* To carry out the tracking operation slowly, depress and release the < ▭ > button. (Holding down the button will move the "X" continuously). If you release the < ▭ > button for too long however, the display will disappear. In that case, depress the < ▭ > button again. When the picture is clear, release the button to stop tracking.

* The display will disappear a few seconds later.

QUICK FINDER

Use the Akai quick finder system during playback to visually locate any point on a recorded tape. The tape will be played back very quickly and no sound will be heard during quick finder operation.





Depress the QUICK FINDER (▶▶) button. The picture will go forward very quickly. When you reach the point you are looking for, depress the PLAY (▶) button to resume normal playback.

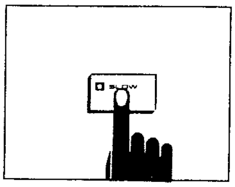
NOTE:
There will be disturbances in the picture during quick finder operation. This is normal and does not indicate a problem with the VS-12.

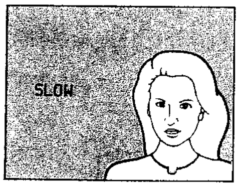
SLOW motion

During playback slow motion can be obtained (approximately half of normal speed) by depressing the SLOW button. No sound will be heard and there will be some noise bars during slow motion playback.

* "SLOW" will be displayed on the TV screen.

To resume playback, depress the PLAY (▶) button.

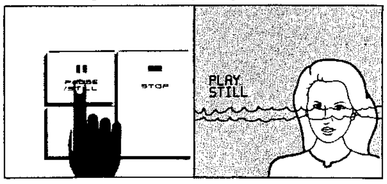




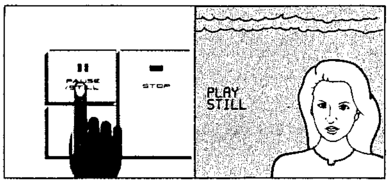
During slow motion playback, if some noise bars appear on the picture, depress the < ▭ > button until noise bars disappear.

NOTE:
Before slow motion playback, you may need to adjust the vertical stability. If you do not adjust the vertical stability, some noise bars will appear and vibrate the picture.
Depress PAUSE, then depress the < ▭ > button. The VERTICAL STABILITY display will appear on the TV. Hold down the <or> side of the button until picture vibration is reduced.

STILL picture playback

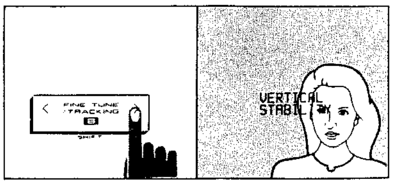


During playback, you can obtain a still picture by depressing the PAUSE/STILL (❚❚) button.
No sound will be heard and there will be noise bars during still picture playback.
To resume normal playback depress the PLAY (▶) button.



- **To move the noise bars**

In the LP mode:
The noise bars which appear during still picture playback can be positioned on the TV screen so that you can look clearly at the details you want. All you have to do is repeatedly depress the PAUSE/STILL (❚❚) button until the noise bars are positioned where you want them to be.
In the SP mode:
The noise bars can be moved in the same way as in LP mode. However, each push of the PAUSE/STILL button will advance the tape one frame.



- **If the still picture vibrates**

If the still picture vibrates, depress the < or > side of the < ▣ > button. The display for "VERTICAL STABILITY" will be shown on the TV screen. Release the button when the vibration is reduced.

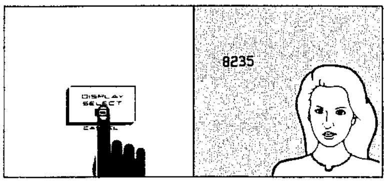
* To carry out this operation more slowly, depress and release the < ▣ > button. However, if you release the < ▣ > button for too long, the display will disappear. In that case, depress the < ▣ > button again.

* The Akai VS-12 does not have the same properties as broadcasting equipment. Therefore some noise bars and vibrations will appear on the picture during quick finder, still, and slow motion playback.

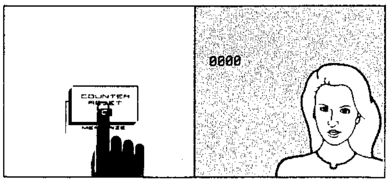
* During quick finder, still, and slow motion playback, the color may disappear from your picture. This is not the fault of the Akai VS-12 but of your color TV.

AUTO STOP

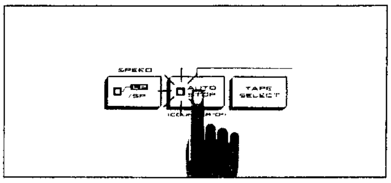
Use the AUTO STOP (COUNTER ZERO) system to quickly return to the beginning of any tape segment from either the play or record modes.



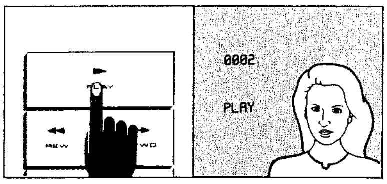
1 When you have located the point on the tape to which you want to return, repeatedly depress the ▣ button until the tape counter is displayed on the TV screen.



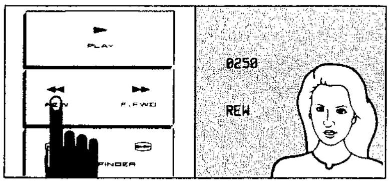
2 Depress the ▣ button to reset the tape counter to "0000".



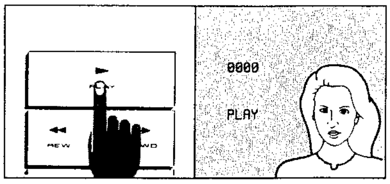
3 Depress the AUTO STOP (COUNTER "0") button.
* Confirm that its indicator is on.



4 Depress the PLAY (▶) button for at least 1 second to begin playback.
* "PLAY" will be displayed on the TV screen for approximately 3 seconds.

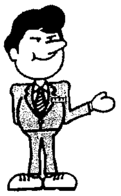


5 When you are ready to return to the point where you began playback, depress the REW (◀◀) button.
The tape will rewind to the beginning of the program (in other words, to the counter reading of "0000") and stop.



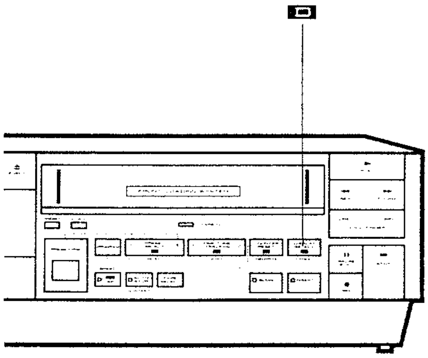
6 To repeat the process, depress the PLAY (▶) button again.
NOTE:
To use the AUTO STOP system during recording, depress the REC (●) button instead of the PLAY (▶) button in step 4.

NOTES:
To Unload a tape
Depress the EJECT (⏏) button. The video cassette tape will be ejected. Take out the video cassette tape.
The EJECT (⏏) button can be depressed any time except during automatic recording and sleep time recording.

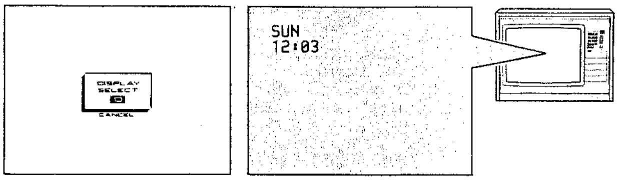


Using the DISPLAY SELECT button

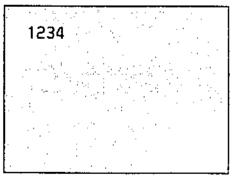
During recording or playback, you can display 5 convenient pieces of information on your TV screen by repeatedly depressing the button.



1 Day of week and actual time



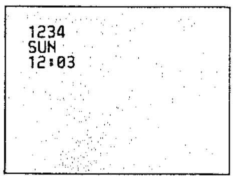
2 Tape counter



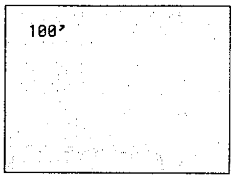
Shows the relative position of the tape.

NOTE:
To reset the tape counter to "0000", depress the button.

3 Tape counter/day of week and actual time

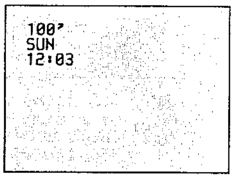


4 Tape remaining time

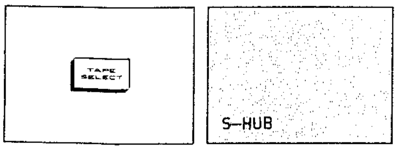


- * Shows you in 5 minute intervals how long until the end of the tape.
- * Set the TAPE SELECT button first.
- * "???" indicates that the Akai VS-12 is calculating the tape time remaining.
- * Tape remaining time does not function during rewind and fast forward. "???" will be displayed.

5 Tape remaining time/day of week and actual time



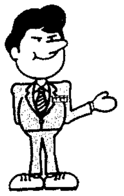
On the TAPE SELECT button



The Akai VS-12 is equipped with a tape remaining time system which tells you in 5 minute intervals how long until the end of the tape. Since video cassette tape's reel hub sizes vary according to the tape length, in order to accurately calculate the tape remaining time, the Akai VS-12 is equipped with the TAPE SELECT button. Before recording or playing back the video cassette tape, set the TAPE SELECT button according to the reel hub size. The position of the TAPE SELECT button will be displayed on the TV screen for approximately 3 seconds.

L-HUB	E-30 or E-60 tape
S-HUB	E-90, E-120 or E-180 tape
E-240	E-240 tape

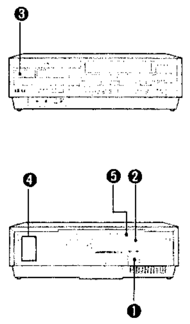
NOTE:
On the acurracy of the tape remaining time.
As the tape remaining time counter does not function as a clock, there is some error in it's counting of time. The counter is intended only as a guide and not as an exact measurement of remaining time.



Let's look at the preset station displays of the Akai VS-12

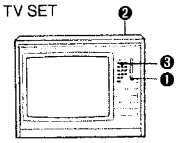
Check before starting

AKAI VS-12



❶	Power cord is properly connected to the household AC outlet.
❷	POWER switch is set to ON (▬).
❸	FUNCTION button is turned on.
❹	All the components are properly connected.
❺	Video mode selector is set properly.

TV SET

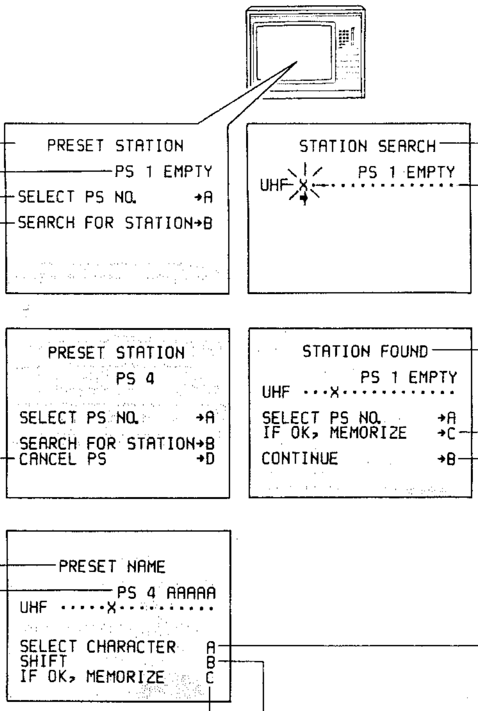


❶	Turned on.
❷	Properly connected.
❸	Set to the video channel.

The Akai VS-12 must be tuned to all the locally available TV stations. We call this procedure "presetting". Up to 32 TV stations can be preset.

There is an automatic station search system inside the Akai VS-12 which searches for and tunes in TV stations. We call this searching for and tuning in of TV stations "station search".

On the preset station display



```
PRESET STATION
            PS 1 EMPTY
SELECT PS NO.        →A
SEARCH FOR STATION→B
```

```
STATION SEARCH
          PS 1 EMPTY
UHF X··············
```

```
PRESET STATION
          PS 4

SELECT PS NO.        →A

SEARCH FOR STATION→B
CANCEL PS            →D
```

```
STATION FOUND
            PS 1 EMPTY
UHF ···X·············

SELECT PS NO.        →A
IF OK, MEMORIZE      →C

CONTINUE             →B
```

```
PRESET NAME
         PS 4 AAAAA
UHF ·····X·········

SELECT CHARACTER   A
SHIFT              B
IF OK, MEMORIZE    C
```

This tells you that this display is for presetting the Akai VS-12 with TV stations.

"PS" stands for "preset station". The numeral beside the "PS" is the preset station number.
When "EMPTY" is displayed as well, it means that the PS number is not memorized with a station.

This is instructing you to depress the – A + button to select the PS number.

This is instructing you to depress the < B > button to start searching for station.

This is instructing you to depress the D button to cancel the preset TV station.

This tells you the display is for presetting the TV station name or call sign (BBC-1 etc.).

This is instructing you to depress the C button to memorize the TV station and name of the TV station.

This tells you that station search is in progress.

This tells you that UHF TV stations are being searched. During station search, the "X" will move.

This tells you that a TV station has been found (in other words, tuned in) and station search has stopped.

This is instructing you to depress the C button to memorize the TV station.

This is instructing you to depress the < B > if you want to continue searching for TV stations.

This is instruction you to depress the – A + button to select the character (i.e. letter, number etc.).

This is instructing you to depress the < B > button to choose the item to be set. The chosen item will flash on and off.

On the TAPE SPEED Selector

	SPEED selector Tape	Recording time	
		Standard Play (SP)	Long Play (LP)
	E-240 E-180 E-120 E-90 E-60 E-30	4 hours 3 hours 2 hours 1-1/2 hours 1 hour 1/2 hour	8 hours 6 hours 4 hours 3 hours 2 hours 1 hour

- * Before recording, set the SPEED selector according to how long you want to record. During playback, the Akai VS-12 automatically detects and after a few seconds, plays back at the corresponding speed.
- * When the SPEED selector is set to SP, slightly better sound quality can be obtained.

(18-20)

NOTE:
Akai does not recommend recording at two different speeds on one video cassette tape. Never change the SPEED selector during recording.

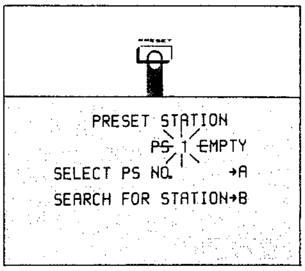
Presetting the Akai VS-12 with TV stations

Important:
Before presetting any stations, set the INPUT SELECTOR of the VS-12 to TUNER

Are you ready?
LET'S START

1

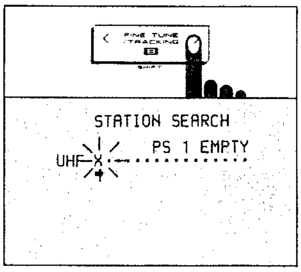
Depress the PRESET button to display the information for presetting the Akai VS-12 on your TV screen.


PRESET
PRESET STATION
PS 1 EMPTY
SELECT PS NO. →A
SEARCH FOR STATION→B

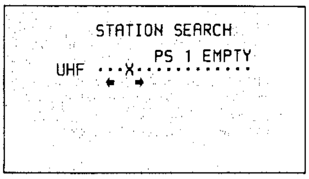
2

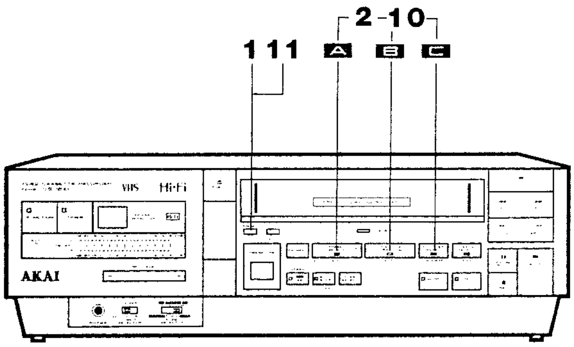
You can preset the Akai VS-12 automatically or manually:

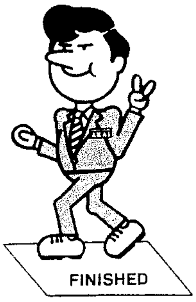
AUTO
To follow the instruction "SEARCH FOR STATION → B", depress the < B > button just once.
The "X" will move from the left to right (regardless of whether the < or > side is depressed), visually indicating the search for TV stations.


FINE TUNE /TRACKING
B
STATION SEARCH
PS 1 EMPTY
UHF X

MANUAL
To follow the instruction "SEARCH FOR STATION → B", keep depressing the < or > side of the < B > button. The "X" will move towards the left when the < side is depressed and towards the right when the > side is depressed, visually indicating the search for TV stations.


STATION SEARCH
PS 1 EMPTY
UHF X


2-10
1 11
A
B
C
VHS Hi-Fi
AKAI

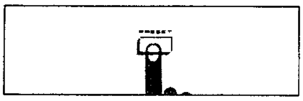


NOTE:

- If you do not wish to preset a TV station name, depress the C button twice at step 5.
  The preset station name will be automatically set to "AAAAA".
- The preset channel number display will not change during TV station presetting operations. It will change however if the – A + button is depressed after completion of TV station presetting operations.

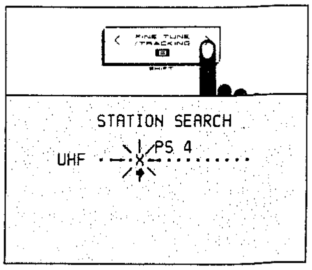
11

To stop station search operation, depress the PRESET button again. The display will disappear from the TV screen.



10

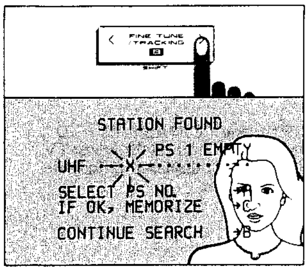
Repeat steps 3 to 9 until you have preset all the locally available TV stations.


FINE TUNE /TRACKING
B
STATION SEARCH
PS 4
UHF X

3

AUTO

Station search stops when a TV station is found (i.e. tuned in) and this information and a program from the found TV station will be displayed.


< FINE TUNE /TRACKING
STATION FOUND
PS 1 EMPTY
UHF
SELECT PS NO.
IF OK, MEMORIZE
CONTINUE SEARCH
→A
→C
→B

MANUAL

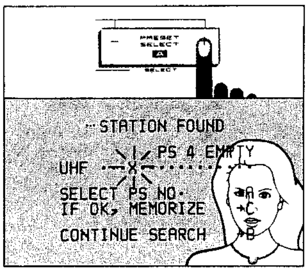
When a station is found (i.e. tuned in), release the button. The information will be displayed.

- If the display and the program are not clear, the TV station may be incapable of being memorized and TV search should be re-started Depress the < ▭ > button to re-start station search from where the previous station search stopped.
- If you do not want to memorize the station, depress the < ▭ > button to resume station search.

4

To follow the instruction "SELECT PS NO.→ A", depress the − ▭ + button to select the preset channel (PS) number.

1, 2, 3, ... up to 32.

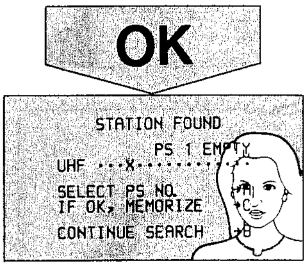

− PRESET SELECT
STATION FOUND
PS 4 EMPTY
UHF
SELECT PS NO.
IF OK, MEMORIZE
CONTINUE SEARCH
→A
→C
→B

* For your convenience, select the preset channel number corresponding to the TV channel selector. For example, if channel selector 4 on your TV is tuned to TV station A, select preset channel 4.

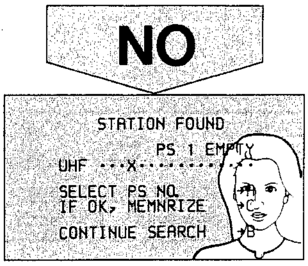
* If "EMPTY" is not displayed after the preset channel number, that number is already memorized with a TV station and you must select another number.

Is a TV station tuned in properly?

The automatic station search system searches for and tunes in TV stations. This searching for TV stations is indicated by the movement of the "X". Searching stops when a TV station is tuned in. A program from the tuned in TV station will be displayed on your TV screen.


OK
STATION FOUND
PS 1 EMPTY
UHF
SELECT PS NO.
IF OK, MEMORIZE
CONTINUE SEARCH
→A
→C
→B

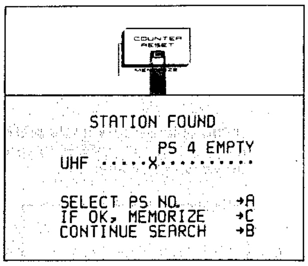
When the display and the program from the tuned in TV station are clear, you can memorize the station.


NO
STATION FOUND
PS 1 EMPTY
UHF
SELECT PS NO.
IF OK, MEMNRIZE
CONTINUE SEARCH
→A
→C
→B

When the display and the program from the tuned in TV station are not clear, the signal from the TV station is not strong enough for clear reception. In that case, the TV station may be incapable of being memorized and TV search should be restarted. This is done by depressing the < ▭ > button.

5

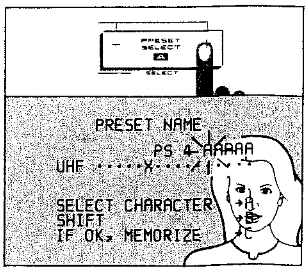
To follow the instruction "IF OK, MEMORIZE — C", depress the button to memorize the TV station into the selected preset channel number.


COUNTER RESET
STATION FOUND
PS 4 EMPTY
UHF
SELECT PS NO. →A
IF OK, MEMORIZE →C
CONTINUE SEARCH →B

6 PRESET TV Station NAME

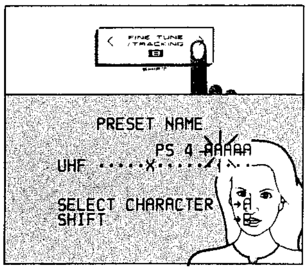
To follow the instruction "SELECT CHARACTER — A", depress the − ▭ + button and select a character (A, B, C, ...1, 2, 3, ...?, etc.).

* Some punctuation marks are included in the alphabet section.


− PRESET SELECT
PRESET NAME
PS 4 AAAAA
UHF
SELECT CHARACTER →A
SHIFT →B
IF OK, MEMORIZE →C

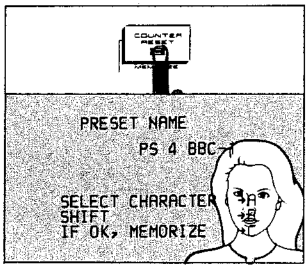
7

To follow the instruction "SHIFT — B", depress the < ▭ > button to shift to next item to be set: character.


< FINE TUNE /TRACKING
PRESET NAME
PS 4 AAAAA
UHF
SELECT CHARACTER →A
SHIFT →B

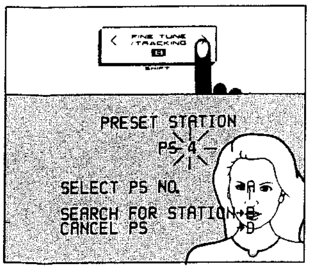
8

Repeat step 6 and 7 until you have preset all items for the TV station name. To follow the instruction "IF OK, MEMORIZE — C", depress the ▭ button to memorize the TV station name.


COUNTER RESET
PRESET NAME
PS 4 BBC
SELECT CHARACTER →A
SHIFT →B
IF OK, MEMORIZE →C

9

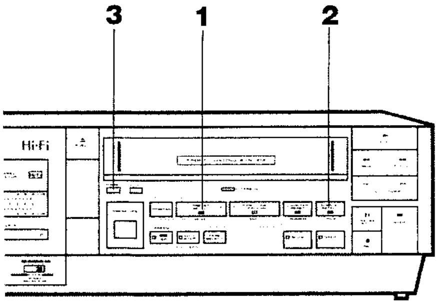
To follow the instruction "SEARCH FOR STATION — B", depress the < ▭ > button to restart station search from where the previous station search stopped.

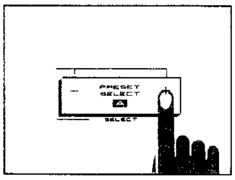

< FINE TUNE /TRACKING
PRESET STATION
PS 4
SELECT PS NO. →A
SEARCH FOR STATION →B
CANCEL PS →D

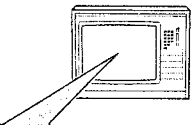
Additional preset station operations

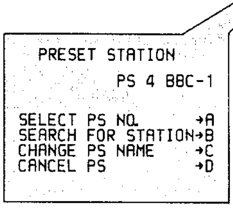
If you want to change a preset TV station name

Depress the PRESET button.





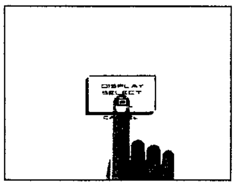


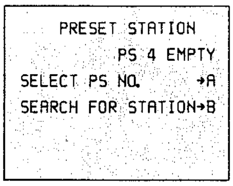


```
PRESET STATION
        PS 4 BBC-1

SELECT PS NO.      →A
SEARCH FOR STATION→B
CHANGE PS NAME     →C
CANCEL PS          →D
```

1

To follow the instruction "SELECT PS NO. → A", depress and hold the — A + button until the TV station number you want to cancel is displayed.

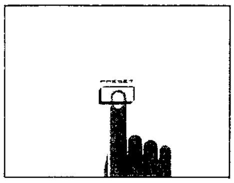




```
PRESET STATION
        PS 4 EMPTY
SELECT PS NO.      →A
SEARCH FOR STATION→B
```

2

To follow the instruction "CANCEL PS → D" depress the D button to cancel the preset TV station. "EMPTY" will be displayed to indicate that the TV station is canceled.

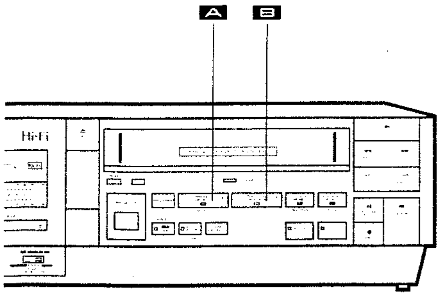


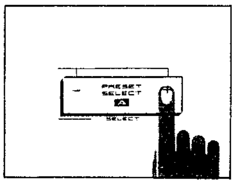
3

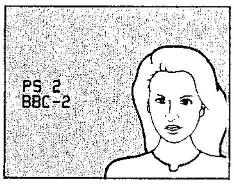
To remove the display, depress the PRESET button.

If the picture from a preset TV station is not clear.

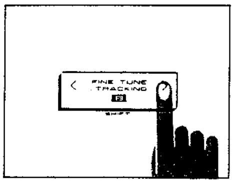
If the color is off when a preset TV station is selected with the — A + button, use the < B > button to finely tune it in.

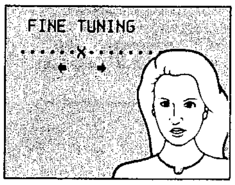






Depress the < B > button to show the display for fine tuning.





Depress the < side to move the "X" to the left and the > side to move the "X" to the right.

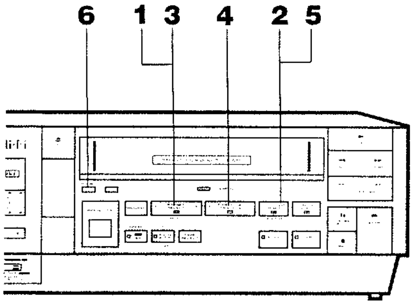
- * Holding down the button will move the "X" continuously.
- * To carry out the fine tuning operation more slowly, depress the button repeatedly in succession. If you release the button for too long, the display will disappear. In that case, depress the button again.

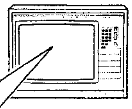
When a program is clearly tuned in, release the button to stop the fine tuning operation.

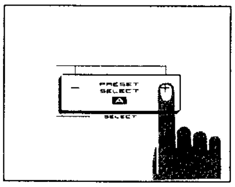
* The display will disappear a few seconds later.

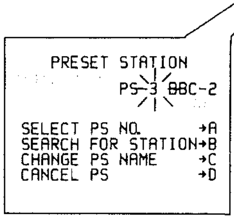
If you want to cancel a preset TV station

Depress the PRESET button.





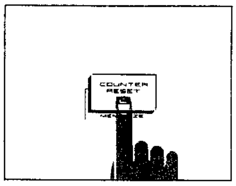


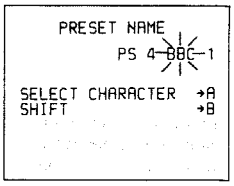


```
PRESET STATION
        PS-3 BBC-2

SELECT PS NO.        →A
SEARCH FOR STATION→B
CHANGE PS NAME      →C
CANCEL PS            →D
```

1

To follow the instruction "SELECT PS NO. – A", depress and hold the –▲+ button until the TV station number you want to change is displayed.

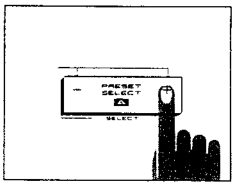


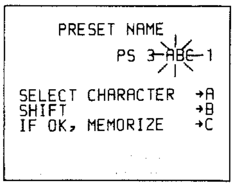


```
PRESET NAME
          PS 4-BBC-1

SELECT CHARACTER  →A
SHIFT              →B
```

2

To follow the instruction "CHANGE PS NAME – C", depress the ■ button to display the information for presetting the TV station name.

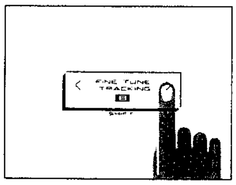


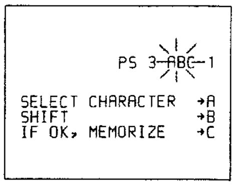


```
PRESET NAME
          PS 3-ABC-1

SELECT CHARACTER  →A
SHIFT              →B
IF OK, MEMORIZE   →C
```

3

To follow the instruction "SELECT CHARACTER – A", depress the –▲+ button, and select a character.

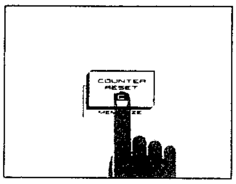


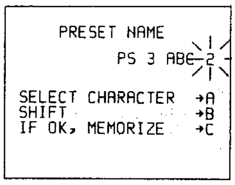


```
          PS 3-ABC-1

SELECT CHARACTER  →A
SHIFT              →B
IF OK, MEMORIZE   →C
```

4

To follow the instruction "SHIFT – B", depress the < ■ > button to shift to next item.

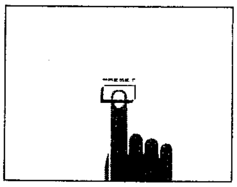




```
PRESET NAME
          PS 3 ABC-2

SELECT CHARACTER  →A
SHIFT              →B
IF OK, MEMORIZE   →C
```

5

Repeat step 3 and 4 until you have reset all items for the TV station name.
To follow the instruction "IF OK, MEMORIZE → C", depress the ■ button to memorize the TV station name.



6

To remove the display, depress the PRESET button.

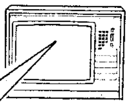
TV search is carried out in this order

AUTO

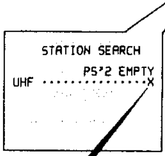
UHF → UHF
When all the frequencies have been scanned, the information for the end of station search will be displayed on your TV screen and a few seconds later it will disappear.

MANUAL

UHF → UHF → UHF . . . and so on . . . . .
During manual station search, scanning is continuous. The information for the end of station search will not be displayed on your TV screen.

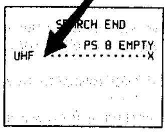


UHF band



```
STATION SEARCH
          PS'2 EMPTY
UHF ..............X
```

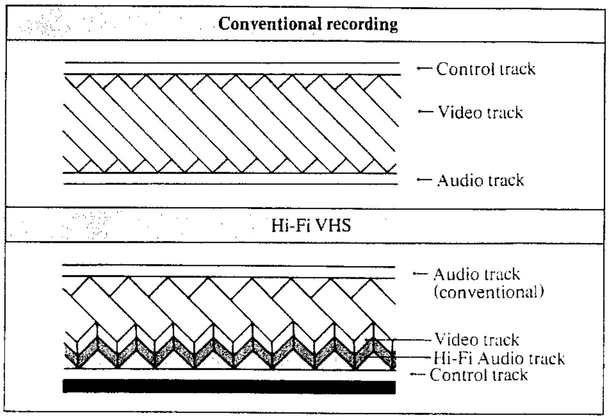
End of TV search



```
SEARCH END
          PS 8 EMPTY
UHF ..............X
```

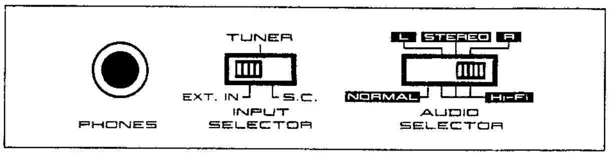
Hi-Fi VHS audio recording and playback

The Akai VS-12 is equipped with the ability to record or playback with full Hi-Fi stereo sound.


Conventional recording
— Control track
— Video track
— Audio track
Hi-Fi VHS
— Audio track (conventional)
— Video track
— Hi-Fi Audio track
— Control track

The VS-12 does this by using 2 audio heads mounted on the video drum, in addition to the 4 video heads. These heads run in the same path as the video heads and "layer" the audio track under the video track as illustrated.

Since you may want to playback tapes recorded with a conventional audio system, the Akai VS-12 is also equipped with a standard audio head and an AUDIO SELECTOR button to switch from NORMAL to HI-FI recording or playback.

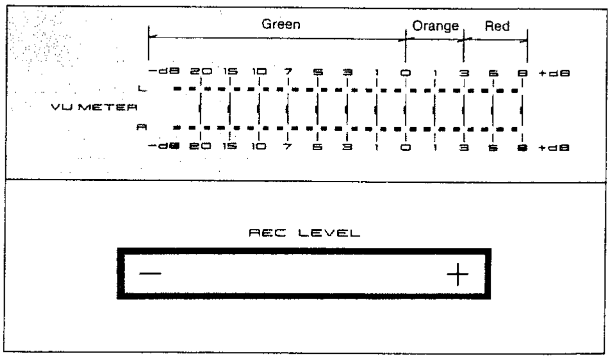

PHONES
TUNER
EXT. IN
S.C.
INPUT SELECTOR
L
STEREO
R
NORMAL
Hi-Fi
AUDIO SELECTOR

The VS-12 features a VU meter and REC LEVEL control to allow better audio recording control.
The VS-12's VU meter is color coded to make dB level identification quick and easy.

The dB level from −20 to 0dB is colored green.
The level from 0 to +3dB is colored orange.
The level above +3dB is colored red.

As the colors imply, green is a "safe" recording level; orange is a maximum recording level; red is an area where distortion is likely to occur. To produce the best recording results, set the REC LEVEL control so that the volume does not exceed the orange (+3dB) level on the VS-12's VU meter.

The VS-12 is also equipped with an initialization circuit, which automatically resets the REC LEVEL to a preset optimum recording level, whenever the VS-12 is turned on. This preset level should produce excellent recordings. If you change the recording volume with the REC LEVEL control, remember that if the VS-12 is turned off, when you turn it back on, it will return to the initial preset level.


Green
Orange
Red
−dB 20 15 10 7 5 3 1 0 1 3 5 8 +dB
L
VU METER
R
−dB 20 15 10 7 5 3 1 0 1 3 5 8 +dB
REC LEVEL
−
+

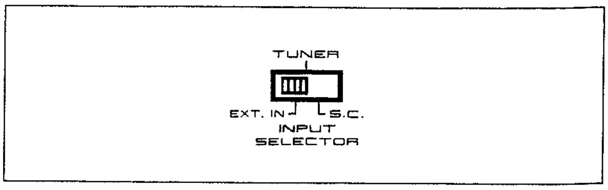
On the AUDIO and INPUT selectors

MODE	SOURCE	AUDIO SELECTOR	INPUT SELECTOR
Playback	Hi-Fi tape	HI-FI Stereo	Either position
	"Normal" tape	NORMAL	Either position
	TV broadcast	Either position	TUNER
Recording	From another VCR Hi-Fi or normal	HI-Fi Stereo	EXT IN
	From a TV broadcast	Hi-Fi Stereo	TUNER
	From another audio source	Hi-Fi Stereo	EXT IN

When recording or playing back from a normal VHS recording or a Hi-Fi VHS recording, the AUDIO selector switch must be properly positioned to obtain the desired result.
Likewise, the INPUT selector must be properly set to recieve signals from the EXT IN jacks of the VS-12, i.e., another VCR, or a stereo cassette deck, or to receive signals from the TV or VS-12's tuner.

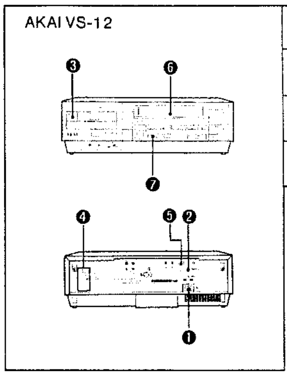
On the Simulcast feature

The INPUT selector also serves as a switch for separating the AUDIO IN of the VS-12, from VIDEO IN. This function is necessary for the simultaneous recording of an FM broadcast and a TV broadcast (simulcast).
With the amplifier and tuner or receiver connected to the VS-12 and turned to the proper station, turn on the TV and the VS-12.
Move the INPUT selector of the VS-12 to the SC position and get ready for recording following the operations on page 24.

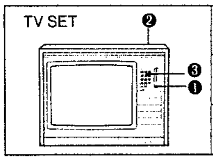

TUNER
EXT. IN
S.C.
INPUT SELECTOR

Let's record a TV program

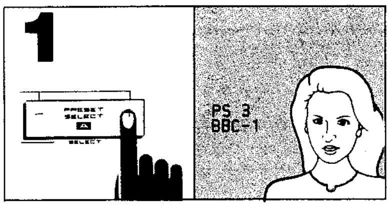
Check before starting



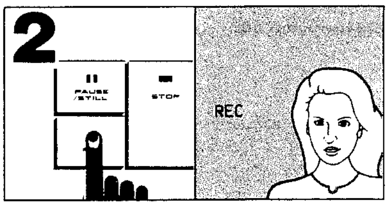
❶	Power cord is properly connected to the household AC outlet.	❺	Video mode selector is set properly.
❷	POWER switch is set to ON.	❻	A video cassette tape is loaded.
❸	FUNCTION button is turned on.	❼	The SPEED selector is set.
❹	All the components are properly connected.		



❶	Turned on.
❷	Properly connected.
❸	Set to the video channel.

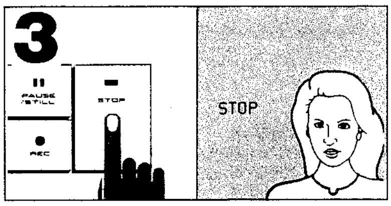


Depress the −▭+ button to select the preset channel number memorized with the TV station to be recorded.
The program from the selected TV station will be displayed on your TV screen. At the same time, the selected preset channel number and name will be displayed on the TV screen for approximately 3 seconds.



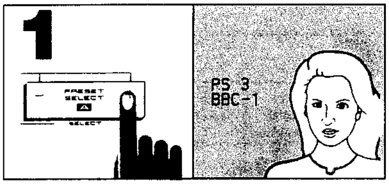
Set the AUDIO selector to Hi-Fi Stereo and set the INPUT selector to TUNER. Depress the REC (●) button for at least one second to begin recording. "REC" will be displayed on your TV screen for approximately 3 seconds.

NOTE:
There is a 3 to 4 second delay before recording starts, while the tape moves into position. For instant recording starts, first depress PAUSE, then REC. When you are ready to begin recording, depress REC again. Recording will begin immediately.



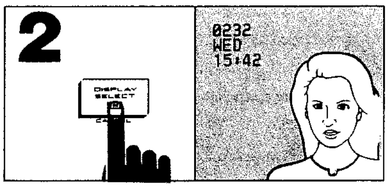
To stop recording depress the STOP (■) button. "STOP" will be displayed on your TV screen for approximately 3 seconds.

Would you like to index your recordings?

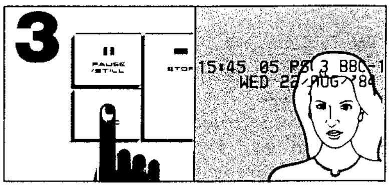


The date, time and preset channel number can be recorded automatically at the beginning of a recording for approximately 7 seconds. When you playback the tape at a later time, you can tell when it was recorded.

Depress the −▭+ button to select the preset channel number memorized with the TV station to be recorded. The program from the selected TV station will be displayed on the TV screen. At the same time, the selected preset channel number will be displayed on the TV screen for approximately 3 seconds.



Repeatedly depress the ▭ button until a display containing the day of the week and the actual time is shown on the TV screen.



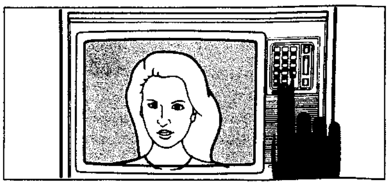
Depress the REC (●) button for at least one second to begin recording.
The index (date, time and preset channel number) will be displayed on the TV screen. This display will be recorded for approximately 7 seconds.

Now when you playback this recording, the date, and time that recording took place will be documented at the beginning of the tape.
Note: If you change your mind about recording this information, wait a few seconds for it to leave the screen before pressing REC.

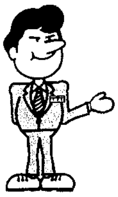
Further recording notes:

- Recording can be stopped temporarily by depressing the PAUSE (❚❚) button.
  To prevent damage to the tape, do not remain in pause for more than 4 minutes. After 4 minutes the Akai VS-12 will automatically go into stop.
- To fast forward the tape, depress the F.FWD (▶▶) button.*"FF" will be displayed on the TV screen for approximately 3 seconds.
- To rewind the tape, depress the REW (◀◀) button.
- "REW" will be displayed on the TV screen for approximately 3 seconds.
- The tape is not played back during fast forward or rewind operations.
- To stop the tape, depress the STOP (■) button or depress the PLAY (▶) button to begin playback.
- If the REC (●) button will not function, check to see if the video cassette tape's recording defeat tab is broken. If it is, cover the hole with a piece of adhesive tape.
- Whenever the end of the tape is reached, the tape will automatically rewind to the beginning and stop.
- If you repeatedly depress the −▭+ too quickly, the PS number shown on the TV screen might not correctly indicate the TV station selected. However, the PS number shown on the PRESET (PS) display on the front of the VS-12 will correctly show the PS number.
  Do not touch the −▭+ button during recording or insert recording as this will cause the PS number to change.

To watch one program while recording another

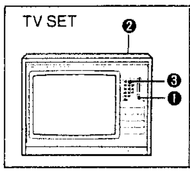


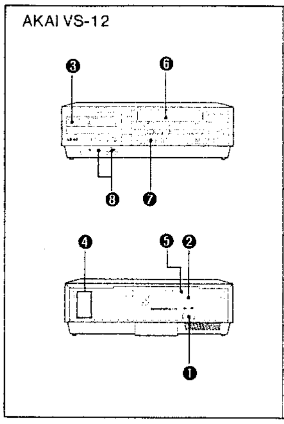
If you want to watch a program on a different channel while you are recording another program, after performing the above operation (Steps 1&2 of Let's record), move the TV's channel selector from the video channel to the channel of the program you want to watch.



Insert recording

Check before starting

	❶	Turned on.
	❷	Properly connected.
	❸	Set to the video channel.

	❶	Power cord is properly connected to the household AC outlet.
	❷	Rear panel POWER switch is set to ON.
	❸	FUNCTION button is turned on.
	❹	All the components are properly connected.
	❺	Rear panel Video mode selector is set properly.
	❻	A video cassette tape is loaded.
	❼	TAPE SELECT button is set.
	❽	AUDIO selector and INPUT selector switchs are properly set.
	❾	Amplifier turned on.

The Akai VS-12 is provided with an INSERT button to better enable you to produce a cleanly edited tape. The normal recording process produces unavoidable "noise" at the beginning and end of each recording. While this noise is not usually important, (since it occurs before the recording begins or after it is finished), when inserting a new passage into a preveously recorded tape, you want the transition to be as clear as possible. With the INSERT button, recorded noise is greatly reduced.

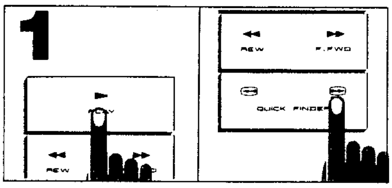
Before operation

Make sure the recording defeat tab of the video tape is not broken. If it is, cover it with a piece of adhesive tape before inserting the tape into the VS-12.

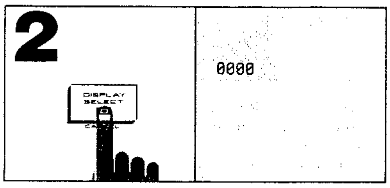
Connect your input source (another VCR for example), to the VIDEO IN and AUDIO IN jacks on the rear panel of the Akai VS-12.

How to operate

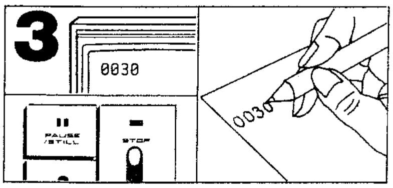
Repeatedly depress the ▣ button until the counter display appears. Then depress the AUTO STOP button to turn it on.



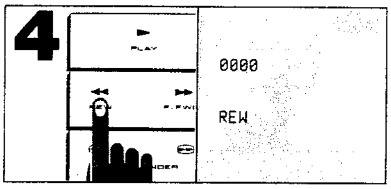
Depress the PLAY button of the VS-12 and then depress QUICK FINDER ⊜ (forward) or ⊜ (reverse), to search for the part of the prerecorded tape you want to replace.



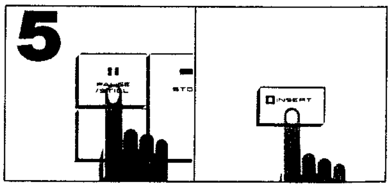
When you have found the exact beginning of the section you want to replace;
Depress the ▣ button to reset the tape counter to "0000".



Play through the tape until you reach the end of the portion you want to replace. Press the STOP button and note the number on the tape counter so you will remember exactly where to stop later on.

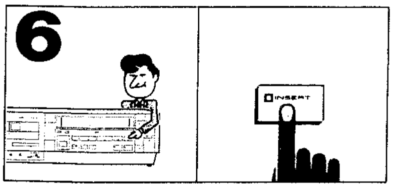


Depress the REW (◀◀) button.
The tape will automatically rewind to "0000".
Be sure that the AUTO STOP button's indicator is lit.

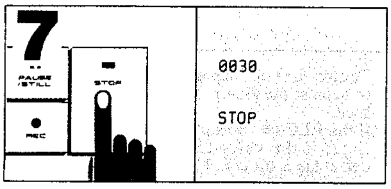


Depress the PAUSE (❚❚) button, and then the INSERT button for at least 1 second to put the Akai VS-12 into the INSERT (REC) PAUSE mode.

NOTE:
The INSERT button can be operated only after depressing the PAUSE (❚❚) button.



Depress the PLAY button of the VCR connected to the input jacks of the VS-12 to start playing the new section of video you want to record, and simultaneously depress the INSERT button on the VS-12 to begin recording that section.



Now, when you reach the tape counter number that you noted in step 3, depress the STOP (■) button, to stop insert recording.

Note:

* The Akai VS-12 does not have the same properties as broadcast equipment. Therefore some noise bars and disturbances may appear on the picture at the beginning and end of insert recording.

Let's look at the programming display of the Akai VS-12

By programming the Akai VS-12, you can make it turn itself on, record a TV program and turn itself off, all automatically.
Up to 8 programs can be set in advance. You can freely choose the Time, Day, Week and TV station you wish to record, and you can do it up to 4 weeks in advance.

This tells you the program number.

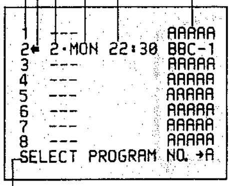
The arrow indicates which program you are going to set.

This tells you the week on which automatic recording is to take place.

This tells you on which day of the week automatic recording is to take place.

This tells you the time at which automatic recording is to take place.

This tells you which preset TV station is to be recorded.



```
1  ---           AAAAA
2◆ 2-MON 22:30  BBC-1
3  ---           AAAAA
4  ---           AAAAA
5  ---           AAAAA
6  ---           AAAAA
7  ---           AAAAA
8  ---           AAAAA
SELECT PROGRAM NO. →A
```

This is instructing you to depress the −▣+ button to select the program you want to set.

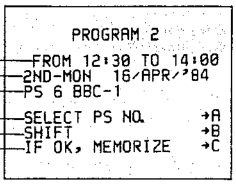
This is instructing you to depress the −▣+ button to select the indication for the flashing item.

"SELECT START TIME" will be displayed when you are to select the time at which automatic recording is to start.
"SELECT STOP TIME" will be displayed when you are to select the time at which automatic recording is to stop.
"SELECT DAY" will be displayed when you are to select the week and the day of the week on which automatic recording is to take place.
"SELECT PS NO." will be displayed when you are to select the preset channel number memorized with the TV station you want to record.

This tells you which preset TV station is to be recorded.

The left tells you the week, the middle the day of the week and the right tells you the date on which automatic recording is to take place.

The left tells you the time at which automatic recording is to start and the right tells you the time at which automatic recording is to stop.

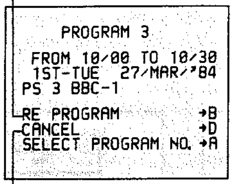


```
      PROGRAM 2
FROM 12:30 TO 14:00
2ND-MON  16/APR/'84
PS 6 BBC-1
SELECT PS NO.      →A
SHIFT              →B
IF OK, MEMORIZE    →C
```

This is instructing you to depress the ▣ button to memorize the program.

This is instructing you to depress the <▣> button to choose the item to be set. The chosen item will flash on and off.

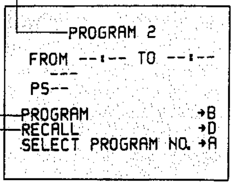
This is instructing you to depress the <▣> to reprogram a set program.



```
      PROGRAM 3
 FROM 10/00 TO 10/30
  1ST-TUE  27/MAR/'84
PS 3 BBC-1
RE PROGRAM         →B
CANCEL             →D
SELECT PROGRAM NO. →A
```

This is instructing you to depress the ▣ button to cancel the program.

This tells you that this display is for programming.



```
       PROGRAM 2
 FROM --:-- TO --:--
   ---
 PS--
PROGRAM            →B
RECALL             →D
SELECT PROGRAM NO. →A
```

This is instructing you to depress the <▣> button to display the information for programming.

This is instructing you to depress the ▣ button to recall a program.

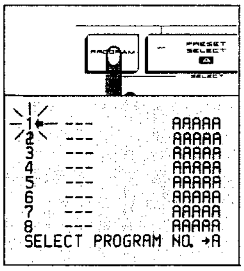
How to program the Akai VS-12 for automatic recording

Are you ready?
LET'S START

As an example, we will set the program shown in step 18 below.

1

Depress the PROGRAM button to display the information for programming on your TV screen.

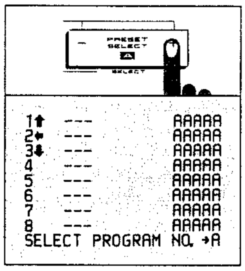

PROGRAM
PRESET SELECT
A
SELECT

```
1←  ---         AAAAA
2   ---         AAAAA
3   ---         AAAAA
4   ---         AAAAA
5   ---         AAAAA
6   ---         AAAAA
7   ---         AAAAA
8   ---         AAAAA
SELECT PROGRAM NO. →A
```

2 PROGRAM NO.

To follow the instruction "SELECT PROGRAM NO. → A", hold the − A + button depressed until the arrow points to the program number you want to set.

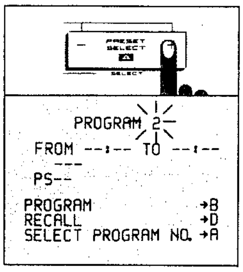
- * To set program 2, depress the − A + button just once.


PRESET SELECT
A
SELECT

```
1↑  ---         AAAAA
2←  ---         AAAAA
3↓  ---         AAAAA
4   ---         AAAAA
5   ---         AAAAA
6   ---         AAAAA
7   ---         AAAAA
8   ---         AAAAA
SELECT PROGRAM NO. →A
```

3

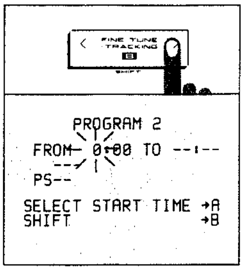
This information will be displayed when the − A + button is released.


PRESET SELECT
A
SELECT

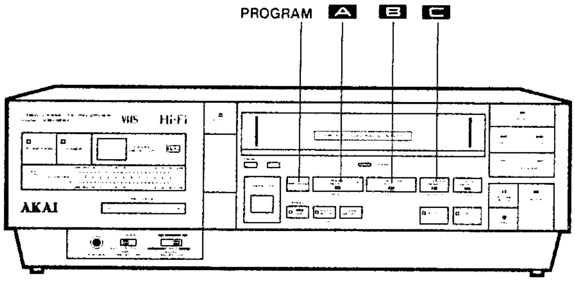
```
    PROGRAM 2
 FROM --:-- TO --:--
  ---
 PS--
PROGRAM            →B
RECALL             →D
SELECT PROGRAM NO. →A
```

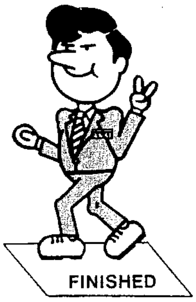
4

To follow the instruction "PROGRAM → B", depress the < B > button to start programming.


FINE TUNE TRACKING
B
SHIFT

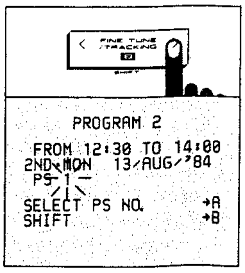
```
    PROGRAM 2
 FROM  0:00 TO --:--
  ---
 PS--
SELECT START TIME →A
SHIFT             →B
```


PROGRAM A B C
VHS Hi-Fi
AKAI



16 PS. no

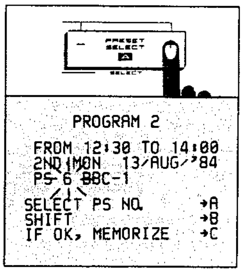
To follow the instruction "SHIFT → B", depress the < B > button to shift to the next item to be set: preset channel (PS) number memorized with the TV station to be recorded.


FINE TUNE /TRACKING
B
SHIFT

```
    PROGRAM 2
 FROM 12:30 TO 14:00
2ND MON  13/AUG/'84
 PS 1
SELECT PS NO.  →A
SHIFT          →B
```

17

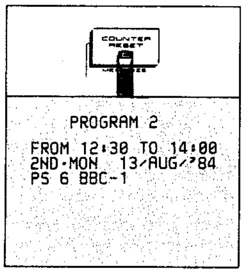
To follow the instruction "SELECT PS NO. → A", depress the − A + button to select the preset channel number.


PRESET SELECT
A
SELECT

```
    PROGRAM 2
 FROM 12:30 TO 14:00
 2ND MON  13/AUG/'84
 PS 6 BBC-1
SELECT PS NO.     →A
SHIFT             →B
IF OK, MEMORIZE   →C
```

18 MEMORIZE

Programming is now finished.
To follow the instruction "IF OK, MEMORIZE → C", depress the C button to memorize the program.
To program other programs, repeat the procedure from step 2.
To reset or cancel a memorized program, refer to page 30 and 31.

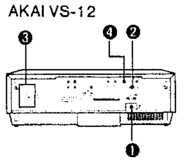

COUNTER RESET
C
MEMORIZE

```
    PROGRAM 2
 FROM 12:30 TO 14:00
 2ND·MON  13/AUG/'84
 PS 6 BBC-1
```

NOTE:
If you want to remove the programming display from your TV screen, depress the PROGRAM button again.

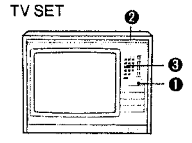
Check before starting

AKAI VS-12



❶	Power cord is properly connected to the household AC outlet.
❷	POWER switch is set to ON.
❸	All the components are properly connected.
❹	Rear panel Video mode selector is set properly.

TV SET

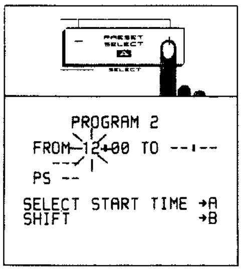


❶	Turned on.
❷	Properly connected.
❸	Set to the video channel.

5 START TIME HOURS

To follow the instruction "SELECT START TIME → A", depress the − A + button to select the turn on hours.

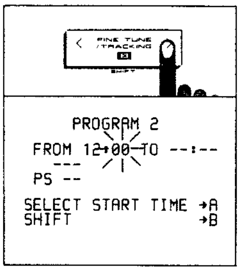
0, 1, 2, ... up to 23


−
PRESET SELECT
A
SELECT

```
PROGRAM 2
FROM 12:00 TO --:--
---
PS --
SELECT START TIME →A
SHIFT             →B
```

6

To follow the instruction "SHIFT → B", depress the < B > button to shift to the next item to be set: start time minutes.

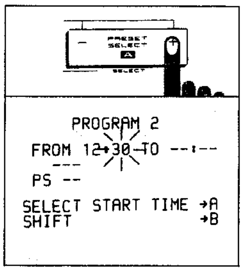

<
FINE TUNE /TRACKING
B
SHIFT

```
PROGRAM 2
FROM 12:00 TO --:--
---
PS --
SELECT START TIME →A
SHIFT             →B
```

7 START TIME MINUTES

To follow the instruction "SELECT START TIME → A", depress the − A + button to select the start time minutes.

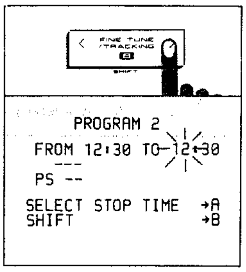
00, 01, 02, ... up to 59


−
PRESET SELECT
A
SELECT

```
PROGRAM 2
FROM 12:30 TO --:--
---
PS --
SELECT START TIME →A
SHIFT             →B
```

8

To follow the instruction "SHIFT → B", depress the < B > button to shift to the next item to be set: stop time hours.

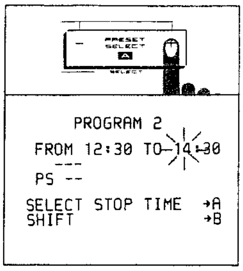

<
FINE TUNE /TRACKING
B
SHIFT

```
PROGRAM 2
FROM 12:30 TO 12:30
---
PS --
SELECT STOP TIME  →A
SHIFT             →B
```

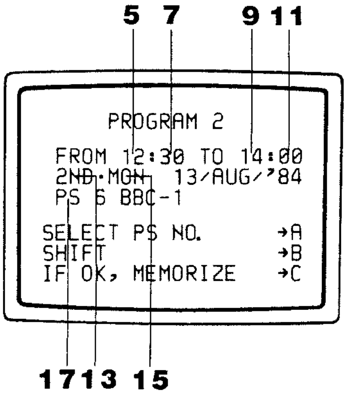
9 STOP TIME HOURS

To follow the instruction "SELECT STOP TIME → A", depress the − A + button to select the turn off hours.

0, 1, 2, ... up to 23


−
PRESET SELECT
A
SELECT

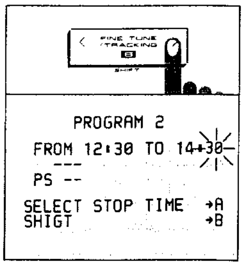
```
PROGRAM 2
FROM 12:30 TO 14:30
---
PS --
SELECT STOP TIME  →A
SHIFT             →B
```


5
7
9
11
17
13
15

```
PROGRAM 2
FROM 12:30 TO 14:00
2ND·MON   13/AUG/'84
PS 6 BBC-1
SELECT PS NO.      →A
SHIFT              →B
IF OK, MEMORIZE    →C
```

10

To follow the instruction "SHIFT → B", depress the < B > button to shift to the next item to be set: stop time minutes.

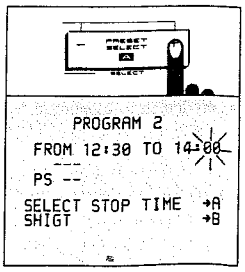

<
FINE TUNE /TRACKING
B
SHIFT

```
PROGRAM 2
FROM 12:30 TO 14:30
---
PS --
SELECT STOP TIME  →A
SHIGT             →B
```

11 STOP TIME MINUTES

To follow the instruction "SELECT STOP TIME → A", depress the − A + button to select the stop time minutes.

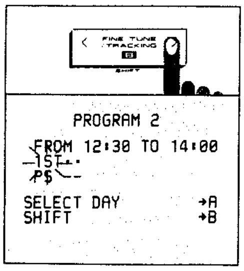
00, 01, 02, ... up to 59


−
PRESET SELECT
A
SELECT

```
PROGRAM 2
FROM 12:30 TO 14:00
---
PS --
SELECT STOP TIME  →A
SHIGT             →B
```

12

To follow the instruction "SHIFT → B", depress the < B > button to shift to the next item to be set: week.

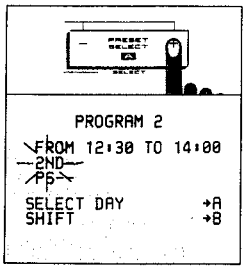

<
FINE TUNE /TRACKING
B
SHIFT

```
PROGRAM 2
FROM 12:30 TO 14:00
1ST..
PS --
SELECT DAY        →A
SHIFT             →B
```

13 WEEK

To follow the instruction "SELECT DAY → A", depress the − A + button to select the week.

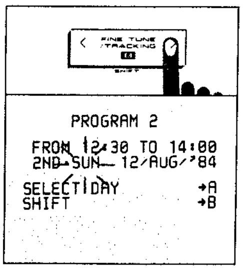
1ST, 2ND, 3RD or 4TH


−
PRESET SELECT
A
SELECT

```
PROGRAM 2
FROM 12:30 TO 14:00
2ND
PS
SELECT DAY        →A
SHIFT             →B
```

14

To follow the instruction "SHIFT → B", depress the < B > button to shift to the next item to be set: day of the week.


<
FINE TUNE /TRACKING
B
SHIFT

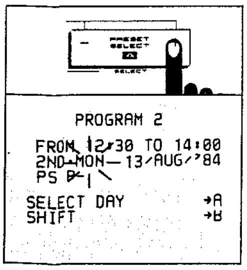
```
PROGRAM 2
FROM 12:30 TO 14:00
2ND·SUN  12/AUG/'84
SELECT DAY        →A
SHIFT             →B
```

15 DAY OF WEEK

To follow the instruction "SELECT DAY → A", depress the − A + button to select the day.

* When the day of the week is set, the corresponding date will be displayed.

SUN, MON, TUE, WED, THU, FRI or SAT

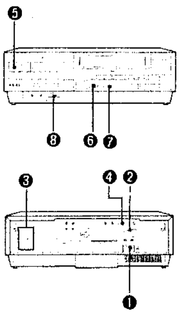

−
PRESET SELECT
A
SELECT

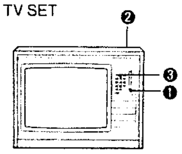
```
PROGRAM 2
FROM 12:30 TO 14:00
2ND·MON  13/AUG/'84
PS
SELECT DAY        →A
SHIFT             →B
```

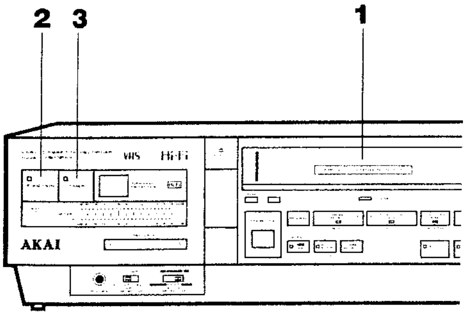
Let's prepare the Akai VS-12 for automatic recording

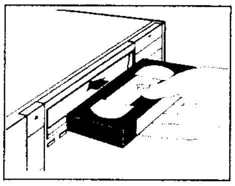
If you want to automatically record an index (date, time and preset channel), repeatedly depress the ▭ button until a display containing the day of the week and the actual time is displayed on the TV screen.

Check before starting

AKAI VS-12 	❶	Power cord is properly connected to the household AC outlet.
	❷	POWER switch is set to ON .
	❸	All the components are properly connected.
	❹	Video mode selector is set properly.
	❺	FUNCTION button is turned on.
	❻	SPEED selector is set.
	❼	TAPE SELECT button is set.
	❽	AUDIO SELECTOR switch is set.
	❾	Amplifier is turned on.

TV SET 	❶	Turned on.
	❷	Properly connected.
	❸	Set to the video channel.



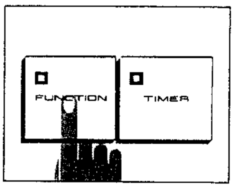


1

Insert a video cassette tape.

* Confirm that the recording defeat tab is not broken. If it is, cover the hole with a piece of adhesive tape.

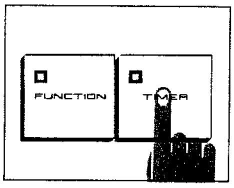
NOTE:
Make sure that the video cassette tape is long enough for the duration of automatic recording.



2

Depress the FUNCTION button to turn off the Akai VS-12.

* Confirm that its indicator is off.



3

Depress the TIMER button to make the Akai VS-12 standby for automatic recording.

* Confirm that its indicator is on.

NOTE:
You can watch a TV program during automatic recording by setting the TV itself to the channel you want.

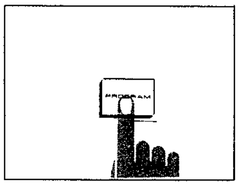
* Turn off the TV if you are not going to watch a program.

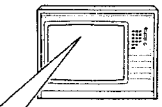
The Akai VS-12 will turn on 6 seconds before the programmed turn on time. One second later, it will automatically start recording and at the programmed turn off time, it will stop recording and turn itself off.

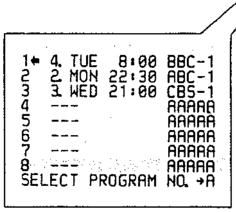
NOTE:
The VS-12 is equipped with an initialization mode which sets the REC LEVEL to an optimum point for good recording, whenever the power is turned on.
During regular recording operation, this level may be changed by use of the REC LEVEL control. However, during TIMER recording operation, the recording volume will always be set to the predetermined optimum level.

If you want to confirm a program

Depress the PROGRAM button.

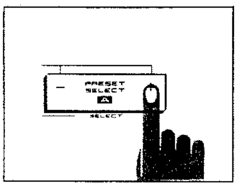


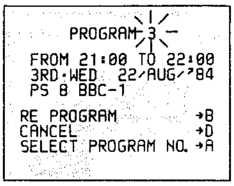




```
1← 4. TUE   8:00 BBC-1
2  2. MON 22:30 ABC-1
3  3. WED 21:00 CBS-1
4  ---          AAAAA
5  ---          AAAAA
6  ---          AAAAA
7  ---          AAAAA
8  ---          AAAAA
SELECT PROGRAM NO. →A
```

The week, day of the week, start time and preset channel number of each program will be displayed. "AAAAA" indicates that the program is not set, was canceled or automatic recording was carried out.





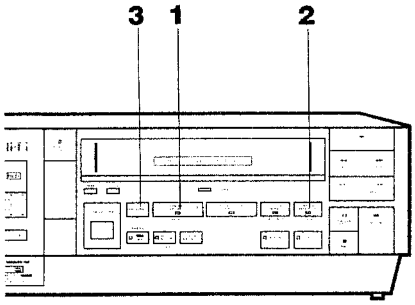
```
     PROGRAM 3
 FROM 21:00 TO 22:00
 3RD·WED  22/AUG/'84
 PS 8 BBC-1
RE PROGRAM         →B
CANCEL             →D
SELECT PROGRAM NO. →A
```

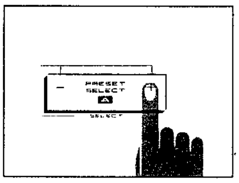
To confirm a program in more details, follow the instruction "SELECT PROGRAM NO. → A": hold the − ▲ + button depressed until the arrow points to the program you want to confirm. To confirm other programs, follow the instruction "SELECT PROGRAM NO. → A", and depress the − ▲ + button.

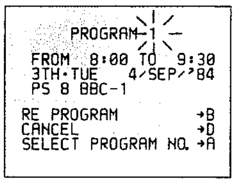
To cancel the information, depress the PROGRAM button.

To cancel a program after it has been memorized

Depress the PROGRAM button.



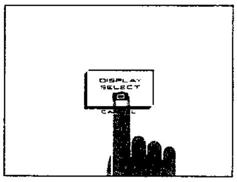


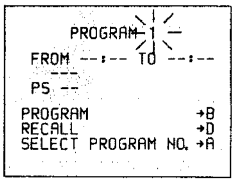


```
     PROGRAM 1
 FROM  8:00 TO  9:30
 3TH·TUE   4/SEP/'84
 PS 8 BBC-1
RE PROGRAM         →B
CANCEL             →D
SELECT PROGRAM NO. →A
```

1

To follow the instruction "SELECT PROGRAM NO. → A", depress the − ▲ + button until the arrow points to the program you want to cancel.





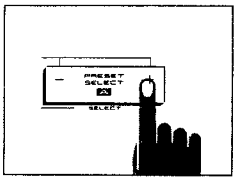
```
     PROGRAM 1
 FROM --:-- TO --:--
 ---
 PS --
PROGRAM            →B
RECALL             →D
SELECT PROGRAM NO. →A
```

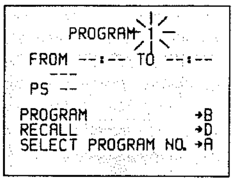
2

To follow the instruction "CANCEL → D", depress the ▣ button to cancel the program. To reprogram repeat the programming procedure from step 4.

If you want to recall a finished or cancelled program

When an automatic recording has been carried out according to a program "AAAAA" will be displayed beside its program number when the PROGRAM button is depressed. To recall the program so that automatic recording can be again carried out according to the program's instructions:

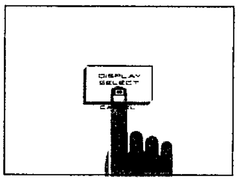


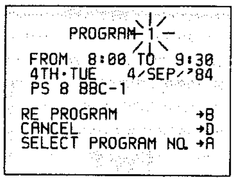


```
     PROGRAM 1
 FROM --:-- TO --:--
 ---
 PS --
PROGRAM            →B
RECALL             →D
SELECT PROGRAM NO. →A
```

1

To follow the instruction "SELECT PROGRAM NO. → A", depress the − ▲ + button until the arrow points to the program you want to recall.

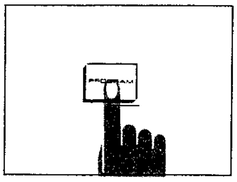




```
     PROGRAM 1
 FROM  8:00 TO  9:30
 4TH·TUE   4/SEP/'84
 PS 8 BBC-1
RE PROGRAM         →B
CANCEL             →D
SELECT PROGRAM NO. →A
```

2

To follow the instruction "RECALL → D", depress the ▣ button to recall the program. Same thing applies for cancelled programs.

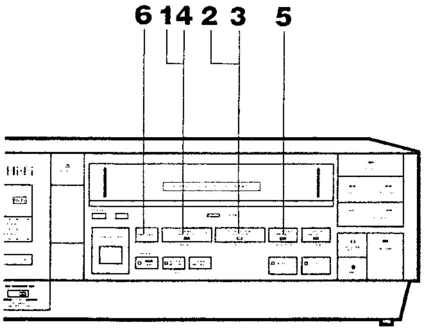


3

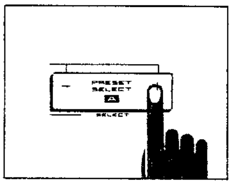
To cancel the information depress PROGRAM button.

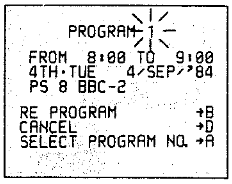
To reset a program after it has been memorized

Depress the PROGRAM button.



6
1
4
2
3
5
Hi-Fi

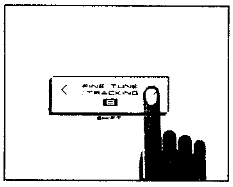

PRESET SELECT
A
SELECT

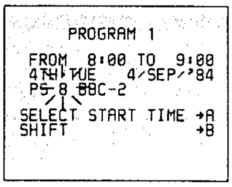


```
PROGRAM 1
FROM  8:00 TO  9:00
4TH·TUE   4/SEP/'84
PS 8 BBC-2
RE PROGRAM          →B
CANCEL              →D
SELECT PROGRAM NO.  →A
```

1

To follow the instruction "SELECT PROGRAM NO. → A", depress the – A + button until the arrow points to the program you want to reset.

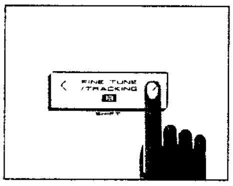

FINE TUNE /TRACKING
B
SHIFT

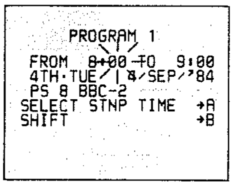


```
PROGRAM 1
FROM  8:00 TO  9:00
4TH·TUE   4/SEP/'84
PS 8 BBC-2
SELECT START TIME →A
SHIFT             →B
```

2

To follow the instruction "REPROGRAM → B", depress the > side of the < B > button.

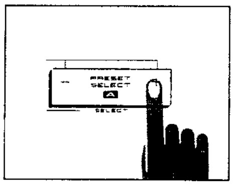

FINE TUNE /TRACKING
B
SHIFT

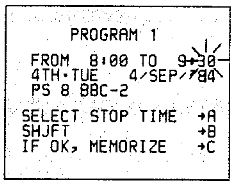


```
PROGRAM 1
FROM  8:00 TO  9:00
4TH·TUE   4/SEP/'84
PS 8 BBC-2
SELECT STNP TIME  →A
SHIFT             →B
```

3

To follow the instruction "SHIFT → B", depress the < B > button until the item you want to reset flashes on and off.

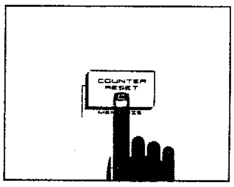

PRESET SELECT
A
SELECT

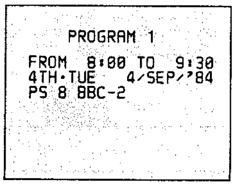


```
PROGRAM 1
FROM  8:00 TO  9:30
4TH·TUE   4/SEP/'84
PS 8 BBC-2
SELECT STOP TIME   →A
SHJFT              →B
IF OK, MEMORIZE    →C
```

4

Then to follow the instruction "SELECT START TIME/STOP TIME/DAY/PS NO. → A", depress the – A + button and reset the item. Reset other items in the same manner. After you have reset all the items, go to the next step.


COUNTER RESET
C
MEMORIZE

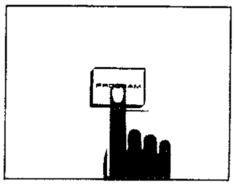


```
PROGRAM 1
FROM  8:00 TO  9:30
4TH·TUE   4/SEP/'84
PS 8 BBC-2
```

5

To follow the instruction "IF OK, MEMORIZE → C", depress the C button.

NOTE:
During programming, any item can be reset by using the C and < B > buttons in the same manner.



6

To remove the information, depress the PROGRAM button.

An example of 4-week timer setting

August						
SUN	MON	TUE	WED	THE	FRI	SAT
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			
September						
				1	2	3
4	5	6	7	8	9	10

"4-week" pre-setting means that you can "reserve" recording time on any one of 28 days in advance-including the day of setting. This means that beginning with today, you can pre-program your Akai VS-12 to automatically record at any time on any day for 28 days.

For example, let's say that today is Monday AUG. 1st and you wish to preset a recording time for later on tonight. Then set the week and day for "1st Monday" which will mean today (AUG. 1st). So now it follows that if you want to pre-set time for next Monday (AUG. 8th), you will set the week and day for "2nd Monday" and so on for "3rd Monday" (AUG. 15th) and "4th Monday" (AUG. 22nd). The same thing applies to the other days of the week.

Now let's say its Tuesday AUG. 2nd at 9:00 PM and you want to pre-set recording time for 8:00 PM the following Tuesday (AUG. 9th). Since it is already past 8:00 PM today (AUG. 2nd) when you are doing the setting, you must set the week and day for "1st Tuesday" since the 1st Tuesday you can record at 8:00 PM is now next week (AUG. 9th). In other words, "1st Tuesday" means the first Tuesday you can record at the time desired. The same thing applies to the other days of the week.

(32-3)

NOTE:
The real time counter in the Akai VS-12, uses a 24 hour notation system following the example:

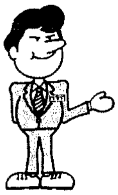
1:00 AM = 1:00
12:00 PM = 12:00
1:00 PM = 13:00
2:00 PM = 14:00
12:00 AM = 0:00

Program List

Program No.	Channel	TV program	Date	Start time	Stop time	Memo
1						
2						
3						
4						
5						
6						
7						
8						

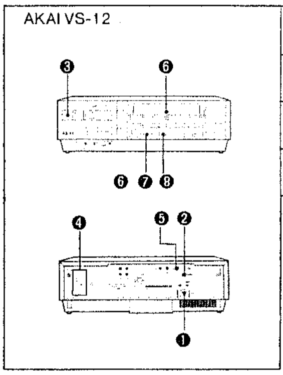
IMPORTANT
PROGRAM PRIORITY

- If two programs are set to turn on at the same day and time the smaller program number has priority.
- If two programs overlap, the earlier program will be interrupted by the latter one.

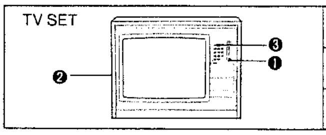


Sleep time setting

Check before starting


AKAI VS-12
❸ ❻
❻ ❼ ❽
❹ ❺ ❷
❶

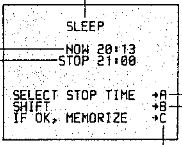
❶	Power cord is properly connected to the household AC outlet.	❺	Rear panel Video mode selector is set properly.
❷	Rear panel POWER switch is set to ON.	❻	AUDIO SELECTOR switch is set.
❸	FUNCTION button is turned on.	❼	AUDIO selector and INPUT selector switchs are properly set.
❹	All the components are properly connected.		



❶	Turned on.
❷	Properly connected.
❸	Set to the video channel.

The Akai VS-12 can be set to stop recording and turn itself off automatically when you have to leave before the program you are recording is finished. We call this turn off time "SLEEP TIME".

On the Sleep time display


SLEEP
NOW 20:13
STOP 21:00
SELECT STOP TIME →A
SHIFT →B
IF OK, MEMORIZE →C

This tells you that the display is for sleep time.

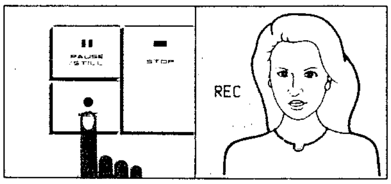
This tells you the actual time.

This tells you the time at which the Akai VS-12 is to turn itself off (i.e. sleep time).

This is instructing you to depress the ▬ button to memorize the sleep time.

This is instructing you to depress the − ▲ + button to select the indication for the flashing item.

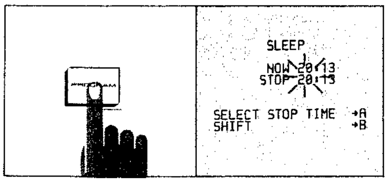
This is instructing you to depress the < ▤ > button to choose the item to be set. The chosen item will flash on and off.


PAUSE STILL
STOP
REC

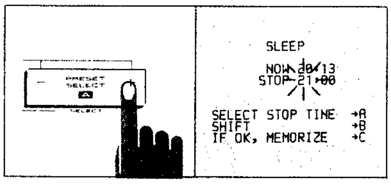
How to set sleep time

Depress the REC (●) button for at least 1 second to record a TV program.

* "REC" will be displayed on your TV screen for 3 seconds.


PROGRAM
SLEEP
NOW 20:13
STOP 20:13
SELECT STOP TIME →A
SHIFT →B

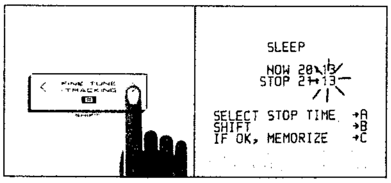
Depress the PROGRAM button to display the information for setting the sleep time on your TV screen.


PRESET SELECT
SELECT
SLEEP
NOW 20:13
STOP 21:00
SELECT STOP TIME →A
SHIFT →B
IF OK, MEMORIZE →C

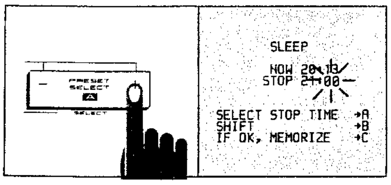
STOP TIME HOURS

To follow the instruction "SELECT STOP TIME → A", depress the − ▲ + button to select the stop time hours.

0, 1, 2 .... up to 23


FINE TUNE TRACKING
SLEEP
NOW 20:13
STOP 21:13
SELECT STOP TIME →A
SHIFT →B
IF OK, MEMORIZE →C

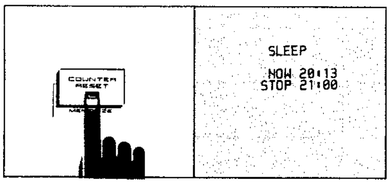
To follow the instruction "SHIFT → B", depress the < ▤ > button to shift to the next item to be set: stop time minutes.


PRESET SELECT
SELECT
SLEEP
NOW 20:13
STOP 21:00
SELECT STOP TIME →A
SHIFT →B
IF OK, MEMORIZE →C

STOP TIME MINUTES

To follow the instruction "SELECT STOP TIME → A", depress the − ▲ + button to select the stop time minutes.

00, 01, 02, ... up to 59


COUNTER RESET
MEMORIZE
SLEEP
NOW 20:13
STOP 21:00

MEMORIZE

The procedure is now finished.

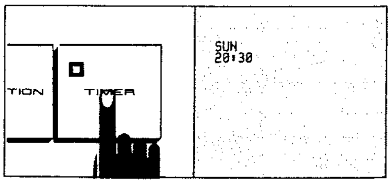
To follow the instruction "IF OK, MEMORIZE → C", depress the ▬ button to memorize the sleep time.

The TIMER button's indicator will light in addition to the FUNCTION button's indicator. Once this operation has been completed, all the buttons will become inoperative.

* Don't forget to turn off the TV.

The Akai VS-12 will stop recording and turn itself off at the programmed sleep time.

After sleep time operation, depress the TIMER button. The indicator will go off. to operate the Akai VS-12 again, depress the FUNCTION button. Its indicator will turn on.

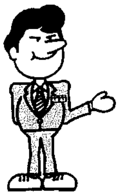

TION
TIMER
SUN
20:30

To cancel sleep time operation during sleep time recording

Depress the TIMER button. Its indicator will go off and the sleep time operation will be canceled the Akai VS-12 goes into normal recording mode.

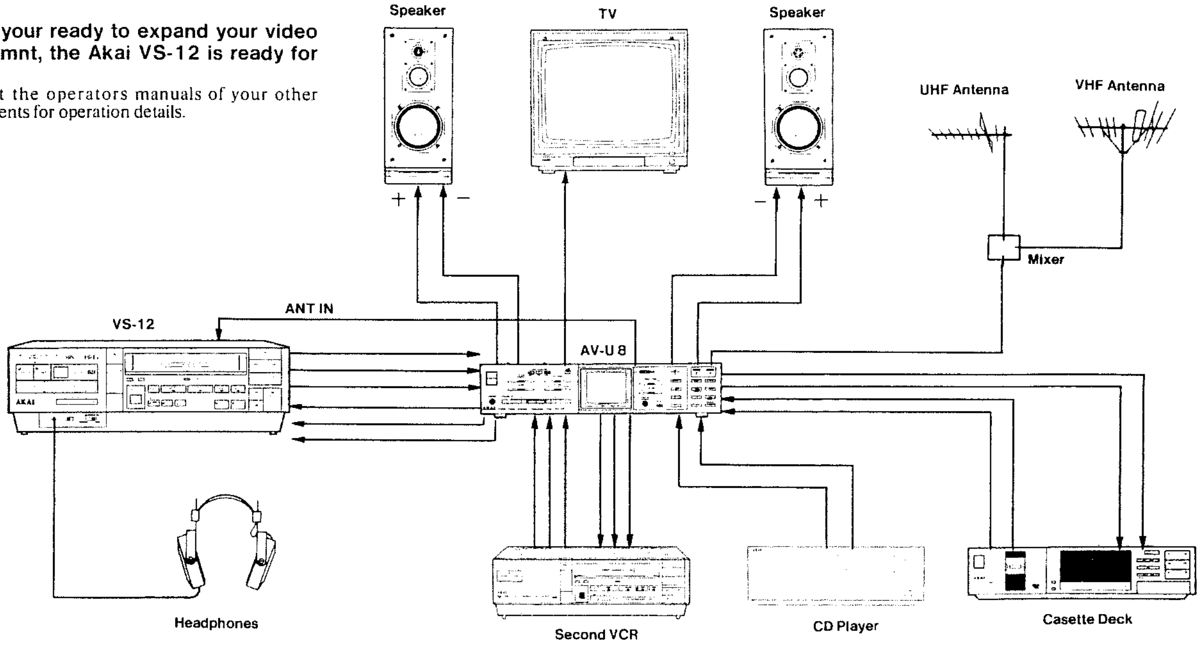
NOTES

- If the tape ends before the programmed sleep time, the tape will rewind to the beginning and stop. When the tape has stopped, sleep time operation will be canceled but the Akai VS-12 will not turn itself off. Therefore make sure that the length of the tape is longer than the sleep time.
- If a sleep timer setting and a preprogrammed recording setting overlap, the preprogrammed recording will take priority over the sleep time setting. In other words, the pre-recorded program will take place as scheduled- both interrupting the program set with the sleep timer and keeping the VS-12 from turning itself off.



Expanding your home video centre

When your ready to expand your video enjoyemnt, the Akai VS-12 is ready for you.
Consult the operators manuals of your other components for operation details.



Final Notes

Power failure
When a power failure occurs, the Akai VS-12 will stop keeping time. When power is resumed, the Akai VS-12 will again start keeping time. To warn you that the time is slow, the information for setting the timer to the actual time will be displayed on the TV screen when the Akai VS-12 is turned on. In that case reset the timer following the procedure on page 9.

Memory back up
There is a rechargeable battery inside the Akai VS-12 for the station and program memories. The memories are retained even during a power failure. The memory back-up battery is recharged as long as the rear panel POWER switch is set to ON. It takes about 30 hours to fully charge the battery which will then supply power for about three days.

Notes:
When the power is cut off for three days or more, confirm the actual time, the preset channels and the programs. If the indication is wrong or if error is indicated, reset all the preset information again, starting with the actual time.

When the Akai VS-12 is receiving certain test patterns such as the Phillips type, there may be some distortion in the Interactive Monitor System charactors on the TV screen.
This is not a malfunction of the Akai VS-12 and will not occur during reception of normal TV programs.

Maintenance
When a dirty tape is used, dirt will accumulate on the video heads. This will cause disturbances on the TV screen which cannot be eliminated with the Akai VS-12's tracking or the TV's fine tuning control. If this should occur, the heads as well as other internal parts must be cleaned. As this equipment is a finely precisioned instrument, never open the equipment yourself. Take it to a qualified service shop or to an authorized Akai Service Station to be cleaned.
* Akai does not recommend the use of cleaning tape.

Should a problem persist, write down the model and serial numbers and all pertinent data regarding warranty coverage as well as a clear description of the existing trouble and contact your nearest authorized Akai Service Station or the Service Department of Akai Electric Company, Tokyo, Japan.

SECTION 2

SERVICE MANUAL

TABLE OF CONTENTS

I. SPECIFICATIONS 36
II. DISMANTLING OF UNIT 37
III. CONTROLS 39
IV. PRINCIPAL PARTS LOCATION 40
V. MECHANICAL ADJUSTMENT 43
  1. BEFORE THE ADJUSTMENT 43
  2. TENSION LEVER POSITION ADJUSTMENT 44
  3. BACK TENSION ADJUSTMENT 44
VI. REPLACEMENT OF VIDEO HEAD ASSEMBLY 45
  1. HOW TO REPLACE THE HEAD BLOCK 45
VII. TAPE TRANSPORT ADJUSTMENT 47
  1. TAPE GUIDE (R) ADJUSTMENT 47
  2. SUPPLY TAPE GUIDE (L) ADJUSTMENT 47
  3. GUIDE ROLLER HEIGHT ADJUSTMENT 47
  4. AUDIO/CONTROL HEAD HEIGHT, TILT AND AZIMUTH ADJUSTMENT 48
  5. CONTROL HEAD POSITION ADJUSTMENT 49
  6. ADJUSTMENT OF QUICK FINDER (REVIEW) RUN 49
VIII. SERVO ADJUSTMENT 50
  1. SERVO ADJUSTMENT (FOR MODELS VS-12) 50
  2. HIFI AUDIO ADJUSTMENT (FOR MODELS VS-12) 54
  3. LINEAR AUDIO ADJUSTMENT (FOR MODELS VS-12) 57
  4. AUDIO BAR METER ADJUSTMENT (FOR MODELS VS-12) 58
  5. VIDEO ADJUSTMENT 58
  6. DEMODULATOR ADJUSTMENT 66
IX. DC RESISTANCE OF VARIOUS COILS 69
X. PC BOARD TITLES AND IDENTIFICATION NUMBERS 70

For basic adjustments, measuring methods, and operating principles, refer to GENERAL TECHNICAL MANUAL.

I. SPECIFICATIONS

Format		VHS standard
Video recording system		Rotary, slant azimuth two-head helical scan system
Recording/Playback time		240 min. with E-240 cassette on SP mode 480 min. with E-240 cassette on LP mode
Tape speed		
SP Mode		23.39mm/sec
LP Mode		11.70mm/sec
Quick finder		
SP Mode		approx. 5 times normal speed
LP Mode		approx. 9 times normal speed
FF, REW time		approx. 4 min. with E-180 cassette
RF input	VS-12EK	System I UHF ch 21 to 69
	VS-12EG	System B, G VHF ch 2 to 12, UHF ch 21 to 69
RF output	VS-12EK	System I type modulation UHF ch 30 to 39 adjustable (Preset ch 36)
	VS-12EG	System G type modulation UHF ch 30 to 39 adjustable (Preset ch 36)
Recording (line input)		PAL, CCIR (System B, G, I)
Playback (line output)		PAL, CCIR (System B, G, I)
Video		
Line input level		0.5 to 2.0Vp-p/75 ohms, unbalanced
Line output level		1.0Vp-p/75 ohms, unbalanced
S/N ratio		more than 43dB
Horizontal resolution		more than 250 lines (SP mode)
Audio (VHS HIFI: 2ch, Linear: 1ch)		
Line input level		–8dBm/50 kohms, unbalanced (309mVrms) (–20dBm at Recording level control max.)
Line output level		–6dBm/1 kohms, unbalanced (388mVrms)
Dynamic range		more than 80 dB (VHS HIFI)
S/N ratio		more than 70dB (VHS HIFI) more than 40dB (Linear track, SP mode)
Frequency response		20 to 20,000 Hz (VHS HIFI) 70 to 8,000 Hz (Linear track, SP mode)
Wow & Flutter		less than 0.005% WRMS (VHS HIFI)
Timer		
Programs		Eight 4-week one time programs and one shut down program
Clock referance		Quartz crystal
Preset TV Stations		32 stations capacity
Display		TV screen (Tape counter, Timer etc.)
Power requirements	VS-12EK	200V/240V AC, 50Hz
	VS-12EG	110V/220V AC, 50/60Hz
Power consumption		48W
Operating temperature		5°C to 40°C
Dimensions		440 (W) × 135 (H) × 363 (D) mm (17.3 × 5.3 × 14.3 inches)

Weight	10.7kg (23.6 lbs)

RC-T12

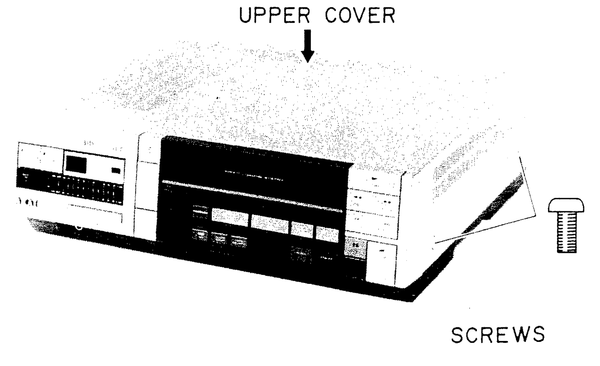
System	Infrared pulse position modulation system
Carrier frequency	38 ± 0.2kHz
Range	more than 8 meters
Directivity	± 30° (at 4 meters)
Batteries	R6 (or AA, SUM-3) x 2 (3 volts)
Dimensions	75 (W) x 18.5 (H) x 162 (D) mm
Weight	110g (without batteries)

* For improvement purposes, specifications and design are subject to change without notice.

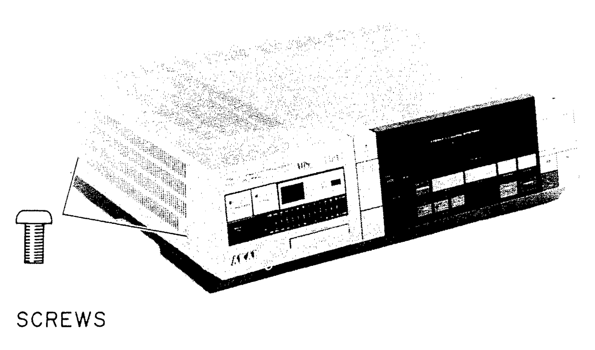
II. DISMANTLING OF UNIT

In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the photographs. Reassemble in reverse order.

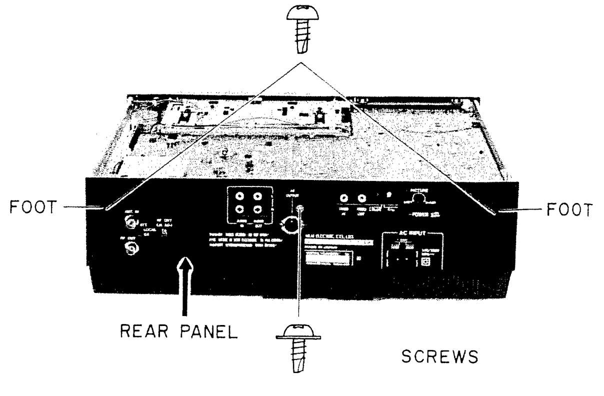
2



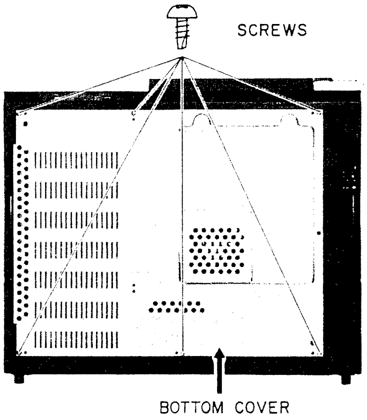
1



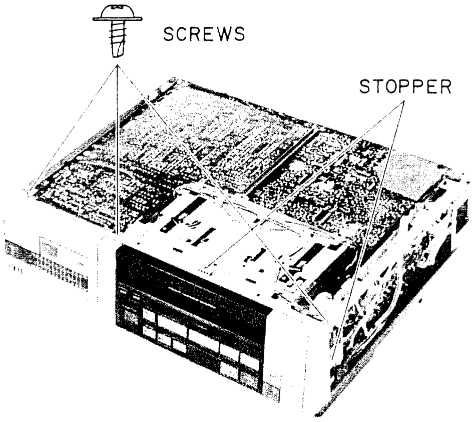
3



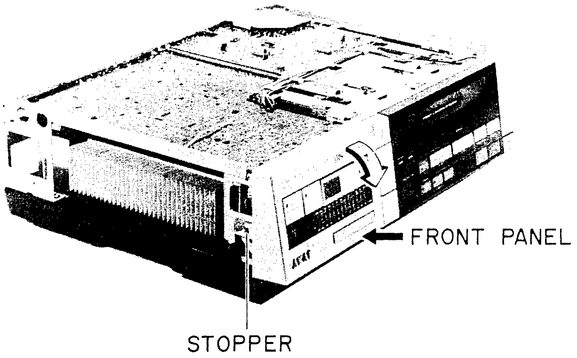
4


SCREWS
BOTTOM COVER

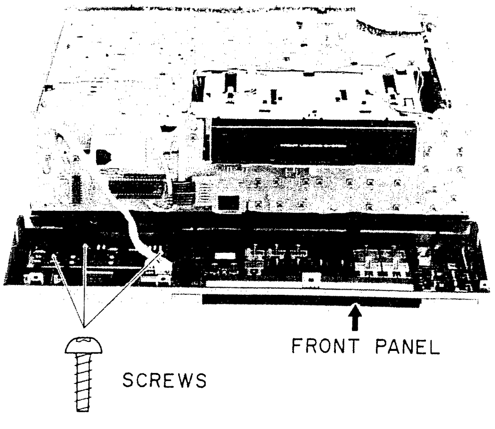
5


SCREWS
STOPPER

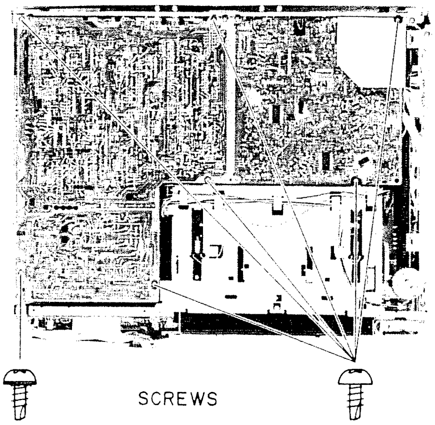
6


FRONT PANEL
STOPPER

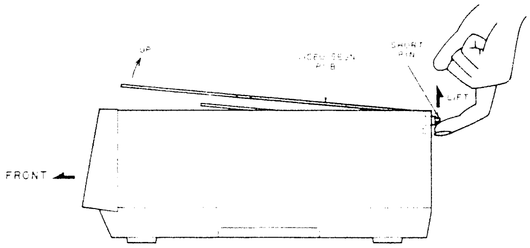
7


SCREWS
FRONT PANEL

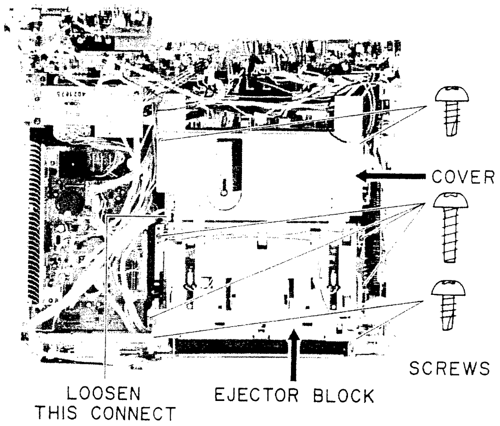
8


SCREWS

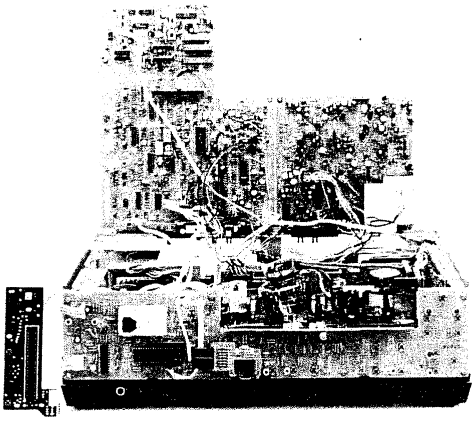
9


UP
SHORT PIN
LIFT
FRONT

10


COVER
SCREWS
LOOSEN THIS CONNECT
EJECTOR BLOCK

11



III. CONTROLS

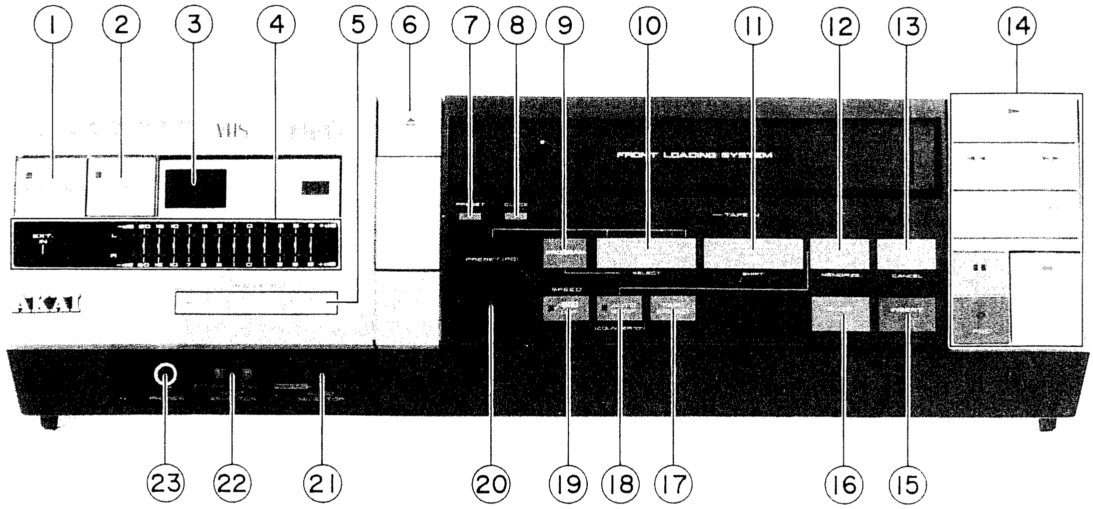

1
2
3
4
5
6
7
8
9
10
11
12
13
14
VHS
EXT. IN
AKAI
FRONT LOADING SYSTEM
PRESET
CLOCK
TAPE
PRESET (PG)
SELECT
SHIFT
MEMORIZE
CANCEL
SPEED
23
22
21
20
19
18
17
16
15

Fig. 3-1 Front View

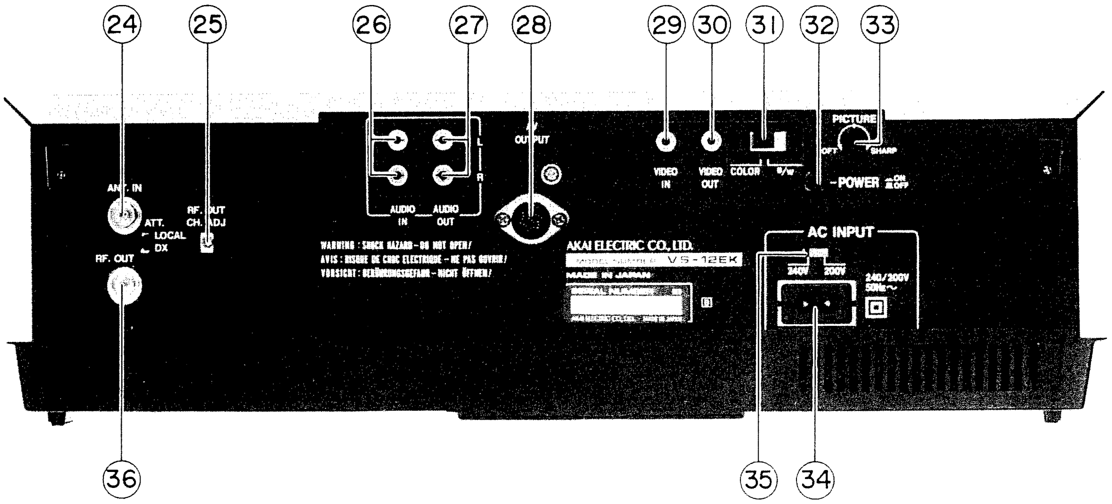

24
25
26
27
28
29
30
31
32
33
ANT. IN
ATT.
LOCAL
DX
RF. OUT
RF. OUT CH. ADJ
L
R
AUDIO IN
AUDIO OUT
AV OUTPUT
WARNING : SHOCK HAZARD—DO NOT OPEN!
AVIS : RISQUE DE CHOC ELECTRIQUE—NE PAS OUVRIR!
VORSICHT: BERÜHRUNGSGEFAHR—NICHT ÖFFNEN!
AKAI ELECTRIC CO., LTD.
VS-12EK
MADE IN JAPAN
VIDEO IN
VIDEO OUT
COLOR
B/W
PICTURE
OFF
SHARP
POWER ON OFF
AC INPUT
240V
200V
240/200V 50Hz~
36
35
34

Fig. 3-2 Rear View

1. FUNCTION "ON/OFF" BUTTON
2. TIMER "ON/OFF" BUTTON
3. REMOTE CONTROL RECIEVER
4. BAR METER (FOR HIFI)
5. REC LEVEL BUTTON (FOR HIFI)
6. EJECT BUTTON
7. PRESET BUTTON (TO TUNE IN TV STATIONS)
8. CLOCK BUTTON (TO SET THE ACTUAL TIME AND DATE)
9. PROGRAM BUTTON (TO AUTOMATICALLY RECORD A TV PROGRAM)
10. PRESET SELECT [A] BUTTON
11. FINE TUNE/TRACKING [B] BUTTON
12. COUNTER RESET [C] BUTTON
13. DISPLAY SELECT [D] BUTTON
14. OPERATION BUTTON (▶)PLAY, (◀◀) REW, (▶▶) F.FWD, (◀◀ ▶▶) QUICK FINDER, (❚❚) PAUSE/STILL, (●) REC, (■) STOP
15. INSERT BUTTON (TO INSERT RECORDING A NEW PICTURE)
16. SLOW BUTTON (TO PLAYBACK AT HALF OF NORMAL SPEED)
17. TAPE SELECT BUTTON
18. AUTO STOP BUTTON
19. SPEED SELECT BUTTON (LP/SP)
20. PRESET CHANNEL DISPLAY
21. AUDIO SELECTOR SWITCH
22. INPUT SELECTOR SWITCH
23. HEADPHONE JACK
24. ANTENNA (ANT) IN JACK
25. RF CONVERTER CHANNEL ADJUSTMENT
26. EXT AUDIO INPUT JACK
27. EXT AUDIO OUTPUT JACK
28. AV OUTPUT JACK
29. VIDEO INPUT JACK
30. VIDEO OUTPUT JACK
31. COLOR MODE SWITCH
32. POWER "ON/OFF" SWITCH
33. PICTURE CONTROL KNOB
34. AC INLET
35. AC INPUT SELECTOR
36. RF OUTPUT JACK

IV. PRINCIPAL PARTS LOCATION

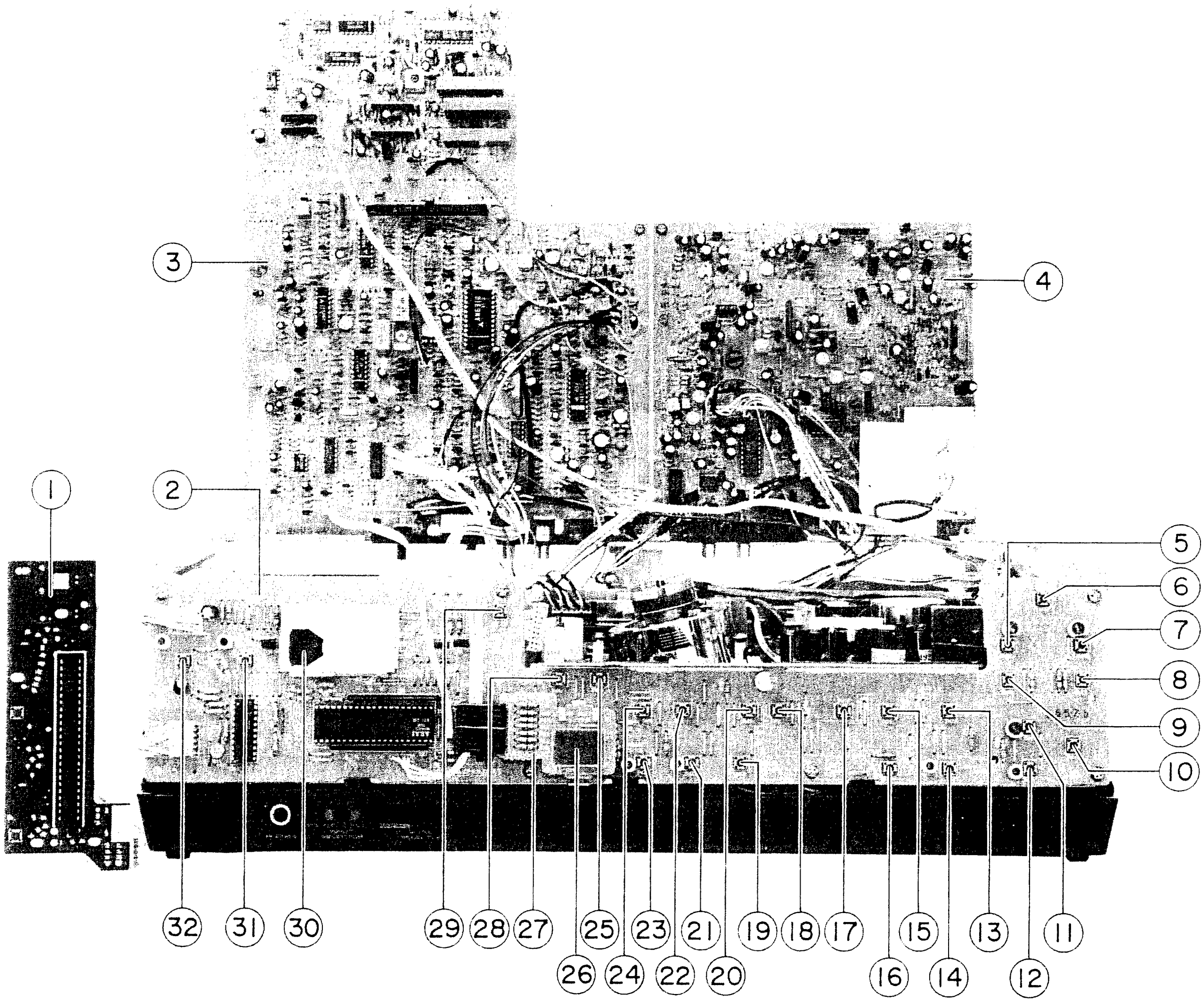


Fig. 4-1 Parts Location (Front View)

1. BAR METER BLK
2. OPERATION PC BOARD (V1015A521A)
3. VIDEO PC BOARD (V1015A501A)
4. HIFI AUDIO PC BOARD (V1039A5010)
5. REWIND SWITCH SW 14
6. PLAY SWITCH SW 13
7. FAST FORWARD SWITCH SW 15
8. QUICK FINDER FORWARD SWITCH SW 17
9. QUICK FINDER REVERSE SWITCH SW 16
10. STOP SWITCH SW 20
11. PAUSE/STILL SWITCH SW 18
12. REC SWITCH SW 19
13. DISPLAY SELECTOR SWITCH SW 12
14. INSERT SWITCH SW 27
15. COUNTER RESET SWITCH SW 11
16. SLOW SWITCH SW 26
17. FINE/TRACKING (+) SWITCH SW 10
18. FINE/TRACKING (–) SWITCH SW 9
19. TAPE SELECT SWITCH SW 23
20. PRESET SELECT (+) SWITCH SW
21. AUTO STOP SWITCH SW 8
22. PRESET SELECT (–) SWITCH SW 7
23. SPEED SELECT SWITCH SW 21
24. PROGRAM SWITCH SW 6
25. CLOCK SET SWITCH SW 5
26. PRESET CHANNEL INDICATOR DISPLAY
27. LED PC BOARD (V1015A521C)
28. PRESET SWITCH SW 4
29. EJECT SWITCH SW 3
30. REMOTE CONTROL RECEIVER
31. TIMER "ON/OFF" SWITCH SW 2
32. FUNCTION "ON/OFF" SWITCH SW 1

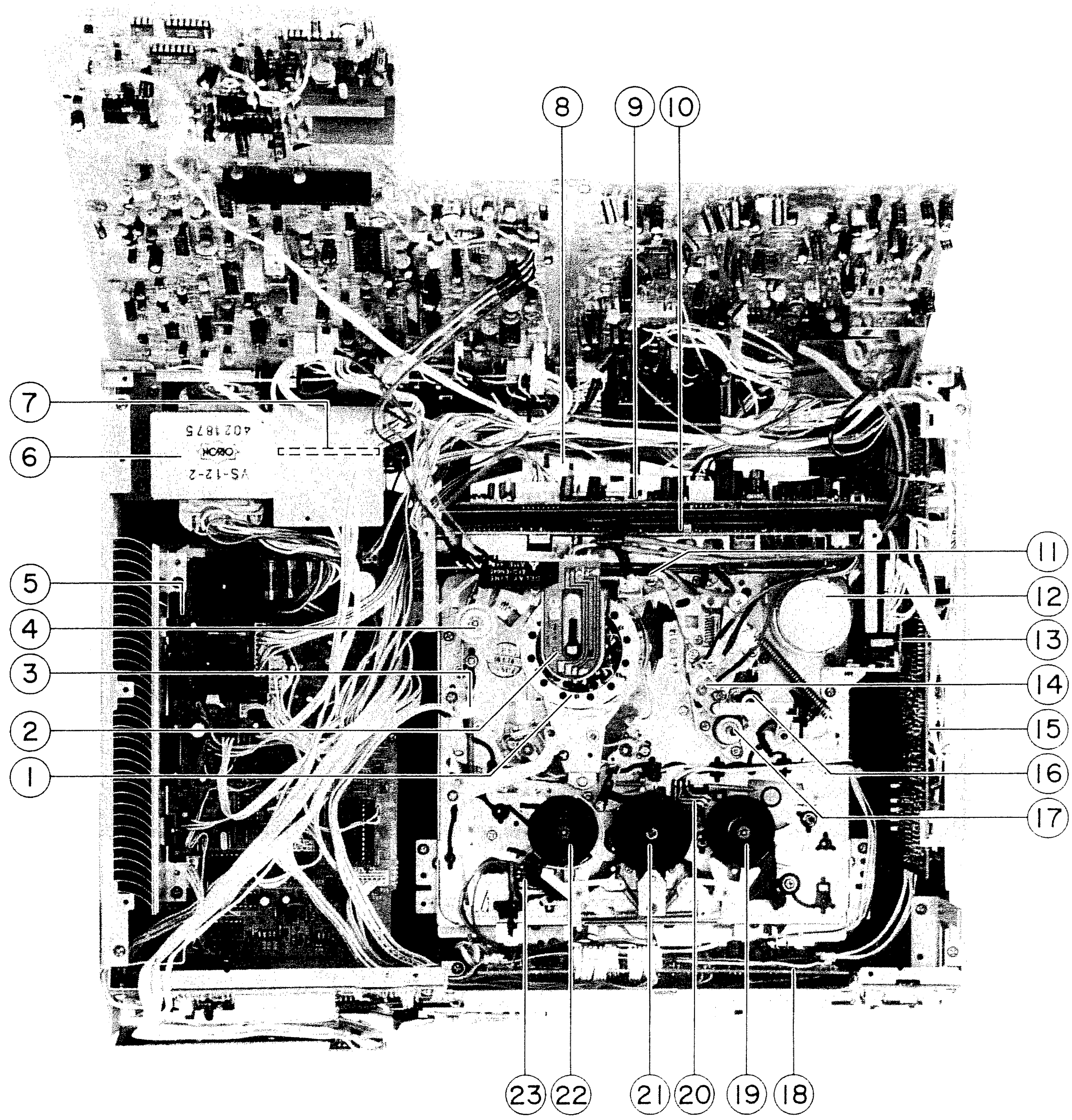


Fig. 4-2 Parts Location (Top View)

1. DRUM HEAD BLOCK
2. STATER COIL BLK PC BOARD (V1039D5080)
3. FULL ERASE HEAD
4. IMPEDANCE ROLLER
5. POWER SUPPLY & SYSCON PC BOARD (V1039A5110)
6. POWER TRANSFORMER
7. POWER FILTER PC BOARD (V1017D5060)
8. TUNER
9. DEMODULATOR PC BOARD (6B00159F)
10. PRE AMP PC BOARD (V1015A5070)
11. RELAY PC BOARD (V1039D5070)
12. CAPSTAN MOTOR
13. CM DRIVE PC BOARD (V1015A501B)
14. AUDIO/CONTROL HEAD
15. SERVO PC BOARD (V1015B5040)
16. PINCH ROLLER
17. CAPSTAN
18. MECHA DRIVE PC BOARD (V1015A502A)
19. TAKE UP REEL
20. HALL IC (R) PC BOARD (V1017D5070)
21. IDLER ASSY
22. SUPPLY REEL
23. HALL IC (L) PC BOARD (V1017D5080)

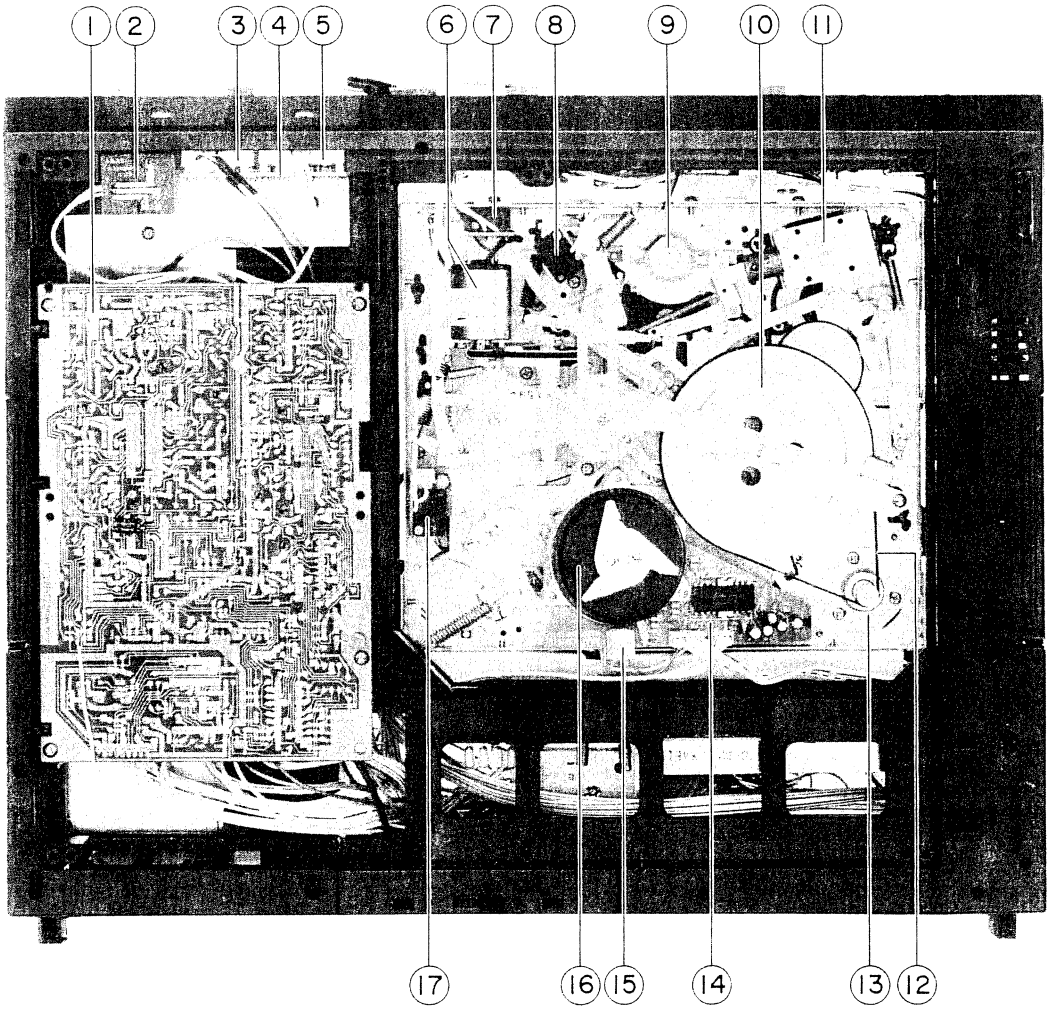

1
2
3
4
5
6
7
8
9
10
11
17
16
15
14
13
12

Fig. 4-3 Parts Location (Bottom View)

1. LINEAR AUDIO PC BOARD (V1039B5020)
2. PHONE JACK PC BOARD (V1039D5050)
3. INPUT SELECTOR SWITCH SW 1
4. SLIDE SWITCH PC BOARD (V1039D5120)
5. AUDIO SELECTOR SWITCH SW 2
6. LOADING MOTOR
7. RECORD SAFETY SWITCH SW 1 /RS SW PC BOARD (V1017A518D)
8. LOADING SWITCH B SW1/L SW (B) PC BOARD (V1017A518B)
9. REEL MOTOR
10. PLUNGER
11. CAPSTAN FLYWHEEL
12. CAPSTAN BELT
13. CAPSTAN MOTOR
14. DRIVE PC BOARD (M3201C5010)
15. DRUM MOTOR PG HEAD
16. DRUM MOTOR
17. LOADING SWITCH A SW 1/SW (A) PC BOARD (V1017A518C)

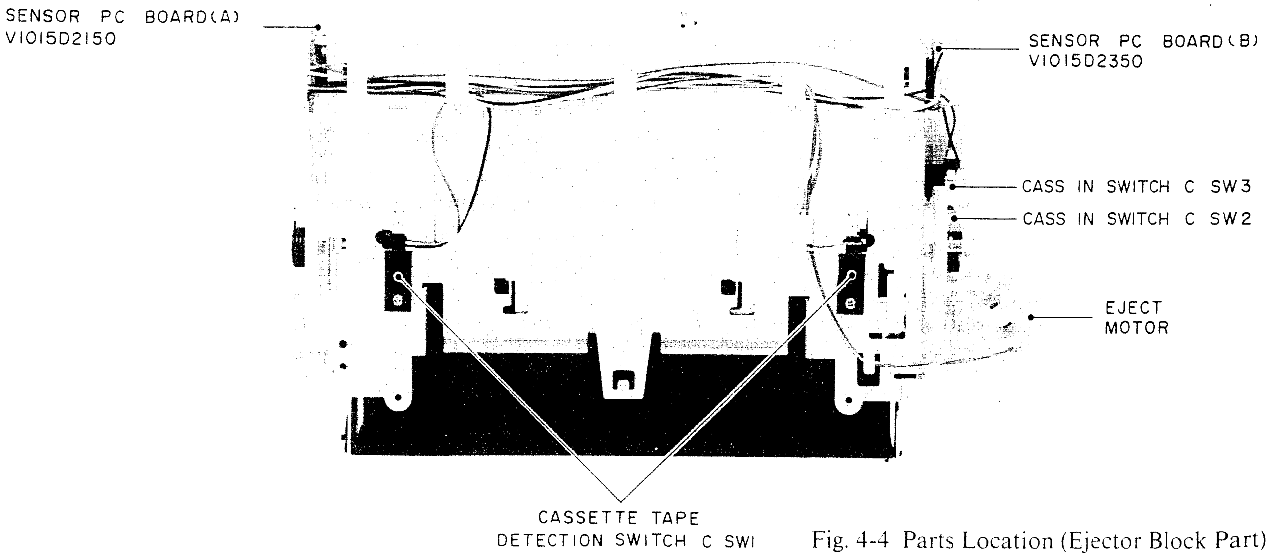

SENSOR PC BOARD(A)
VIOI5D2150
SENSOR PC BOARD(B)
VIOI5D2350
CASS IN SWITCH C SW3
CASS IN SWITCH C SW2
EJECT
MOTOR
CASSETTE TAPE
DETECTION SWITCH C SWI

Fig. 4-4 Parts Location (Ejector Block Part)

V. MECHANICAL ADJUSTMENT

5-1. BEFORE THE ADJUSTMENT

5-1-1. HOW TO REFRESH MICROPROCESSOR

External noise, such as AC power flash can affect microcomputer circuitry. The contents of the memory of the microcomputer and external memory data may become scrambled. if this condition occurs, problems may arise with functions which had previously worked faultlessly. (For example, defective motion, programs cannot be correctly input, the TV search function fails to operate and the contents of the preset memory are deleted.) If this happens reinput the entire contents of the memory as follows. This shoud solve the problem. (Because the preset memory will have been deleted, it will be necessary to reset to TV channels.)

1) Turn on the power switch located on the rear panel with depressing both F.FWD and CUE buttons.
2) Then turn off and on again the power switch located on the rear panel.
3) Now, the refreshment of MI-COM is completed.

5-1-2. BUILD A DUMMY CONNECTOR

(Refer to Fig. 5-1)

Ejector block has to be removed for mechanical adjustment.

Consequently, it is necessary to build a dummy connector shwon in Fig. 5-1.

The connector used for this dummy connector is PLUG 8P Connector. (Parts Number EJ-331248)

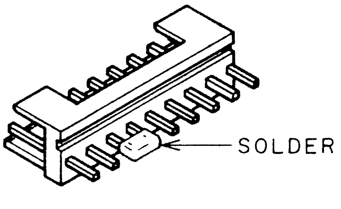


Fig. 5-1 Dummy Connector

5-1-3. CONFIRMATION OF REGULATOR OUTPUT VOLTAGE (Refer to Fig. 5-2 and chart 5-1)

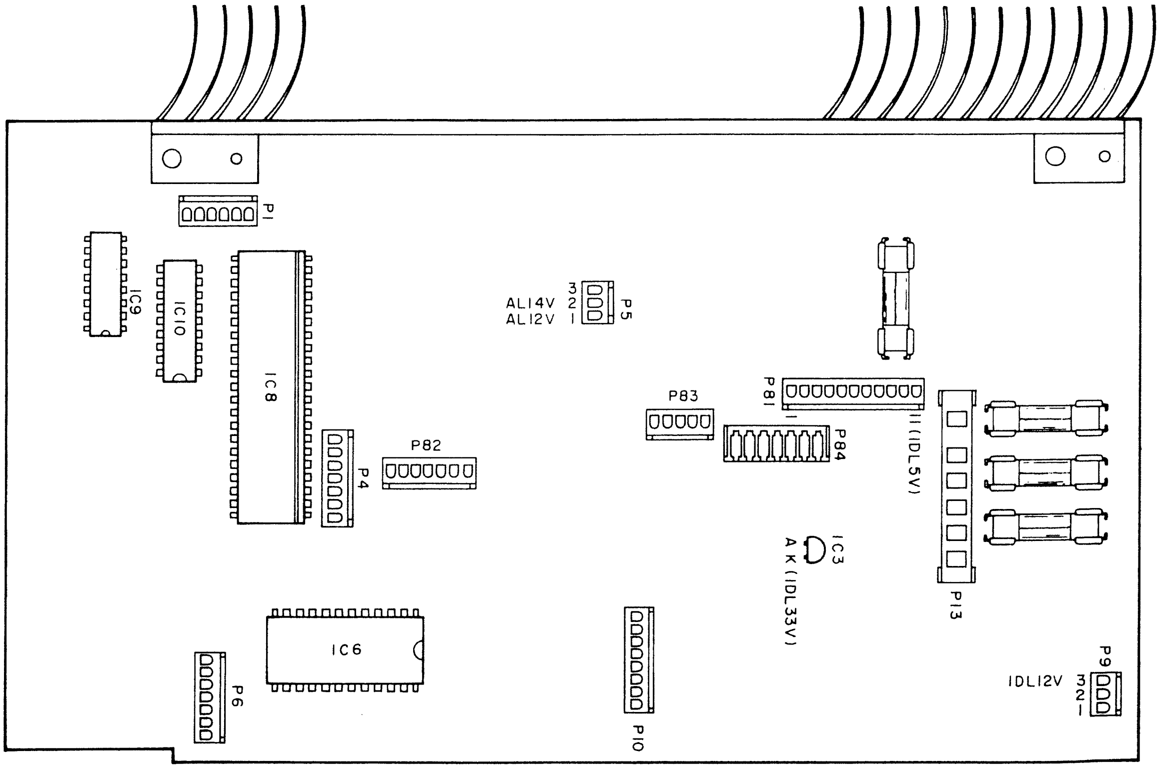


Fig. 5-2 Top view of Power & Syscon PC Board

Confirm that the voltages measured by a digital DC voltmeter at each point are as indicated in chart 5-1.

Check Points	Meter Readings
IDL 5V	5.0 ± 0.25V
IDL 12V	12.0 ± 1.0V
IDL 33V	33.0 ± 2.0V
AL 12V	12.0 ± 0.6V
AL 14V	14.0 ± 0.7V

Chart 5-1

5-2. TENSION LEVER POSITION ADJUSTMENT (Refer to Fig. 5-3)

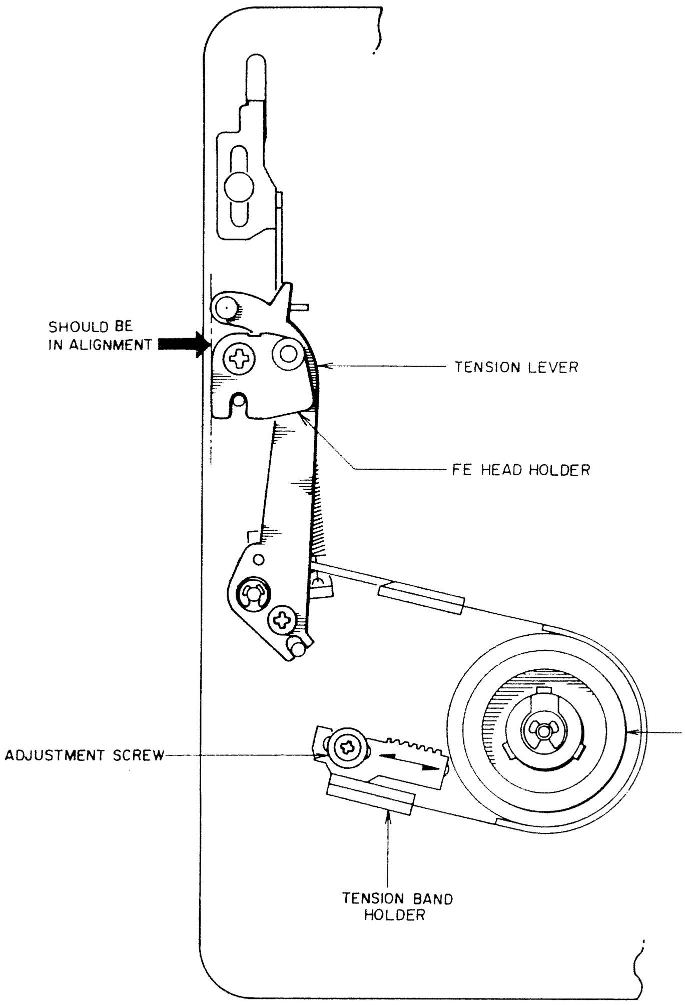

SHOULD BE IN ALIGNMENT
TENSION LEVER
FE HEAD HOLDER
ADJUSTMENT SCREW
S-REEL TABLE BLOCK
TENSION BAND HOLDER

Fig. 5-3

1) Remove the Ejector block from Mechanism chassis.
2) Disconnect the 8P connector and connect a Dummy plug insted of the Ejector block which built at Section 5-1-2.
3) Achieve PLAY mode, and switch "OFF" the Power switch on the rear panel and maintain the loading position.
4) Loosen the adjustment screw and adjust the Tension band holder so that the tension lever and Full erase head holder are in alignment as shown in Fig. 5-3, and tighten the adjustment screw.

5-3. BACK TENSION ADJUSTMENT (Refer to Fig. 5-4, 5-5)

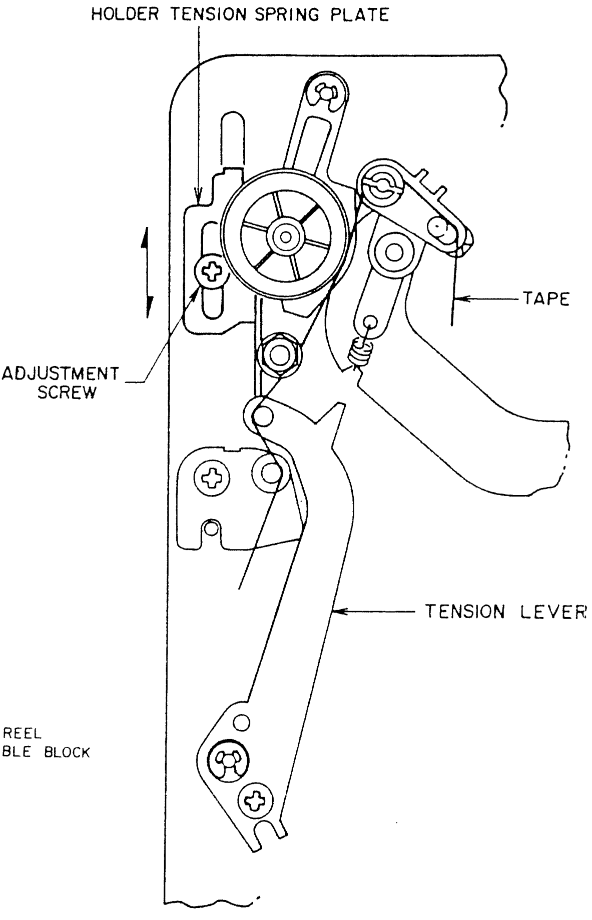

HOLDER TENSION SPRING PLATE
TAPE
ADJUSTMENT SCREW
TENSION LEVER

Fig. 5-4

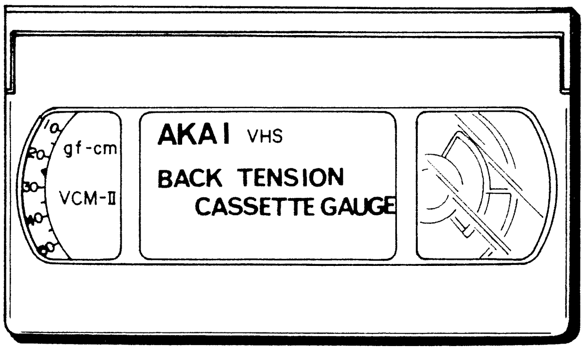

gf-cm
VCM-Ⅱ
AKAI VHS
BACK TENSION
CASSETTE GAUGE

Fig 5-5 Back Tension Jig (AJ-751181)

1) Set the Back Tension Jig. (AJ-751181) as shown in Fig. 5-5, and put some weight on the Back Tension Jig.
2) Achieve PLAY mode.
3) Loosen the adjustment screw shown in Fig. 5-4, and adjust the Tension Spring Holder Plate so that the back tension will be 28 ± 5gf-cm, and tighten the adjustment screw.

VI. REPLACEMENT OF VIDEO HEAD ASSEMBLY

6-1. HOW TO REPLACE THE HEAD BLOCK

1) Remove the Drum Shield Cover.
2) Remove the two soldered wires connected between the PRE AMP PCB and RELAY PCB, and PRE AMP PCB and Shield Platex as shown in Fig. 6-1.

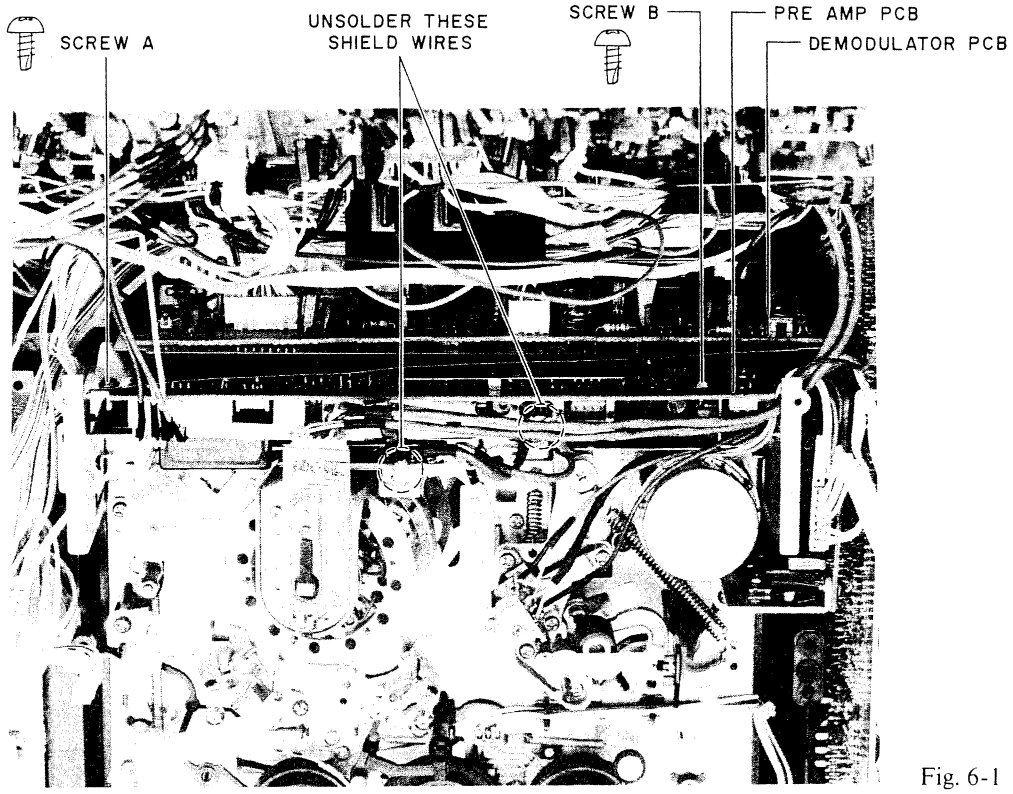

SCREW A
UNSOLDER THESE SHIELD WIRES
SCREW B
PRE AMP PCB
DEMODULATOR PCB

Fig. 6-1

3) Remove the two screws A, B fixing the PRE AMP PCB, and take off the Shield Case Cover on the PRE AMP PCB as shown in Fig. 6-1.
4) Disconnect the following four connectors from the Stator Coil Assy, PRE AMP PCB, and Power supply & Syscon PCB.
   a. Stator Coil connector connected to VIDEO PCB
   b. PRE AMP PCB 6pin connector connected to RELAY PCB
   c. PRE AMP PCB 2pin connector connected to RELAY PCB
   d. Posistor connector connected to Power supply & Syscon PCB
5) Remove the Fan and the Drum Motor Block (BLM-410) as shown in Fig. 6-2, Fig. 6-3.

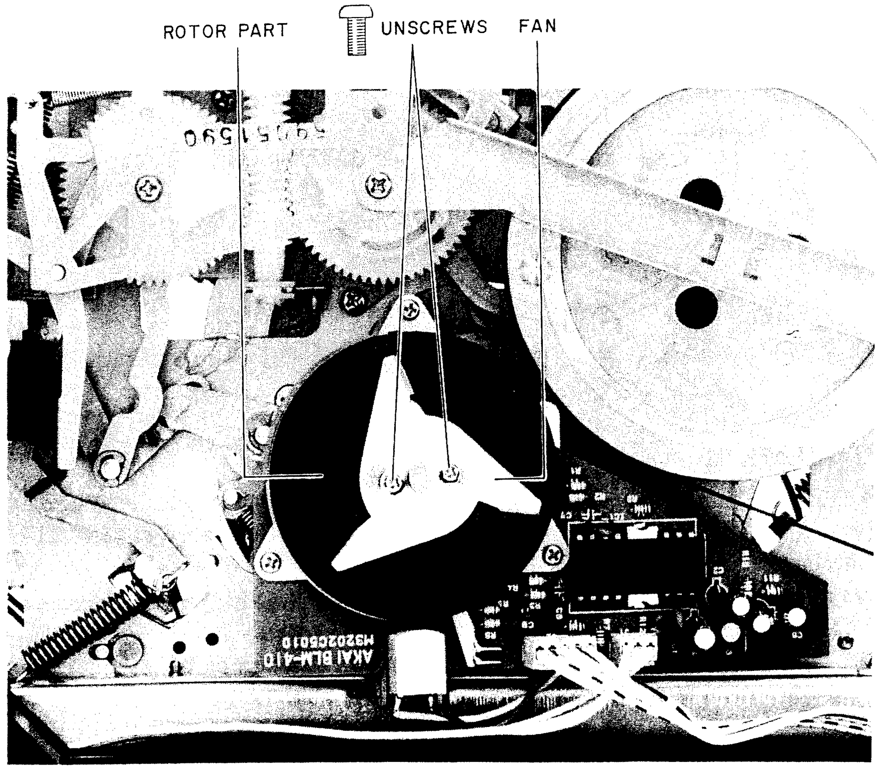

ROTOR PART
UNSCREWS
FAN

Fig. 6-2

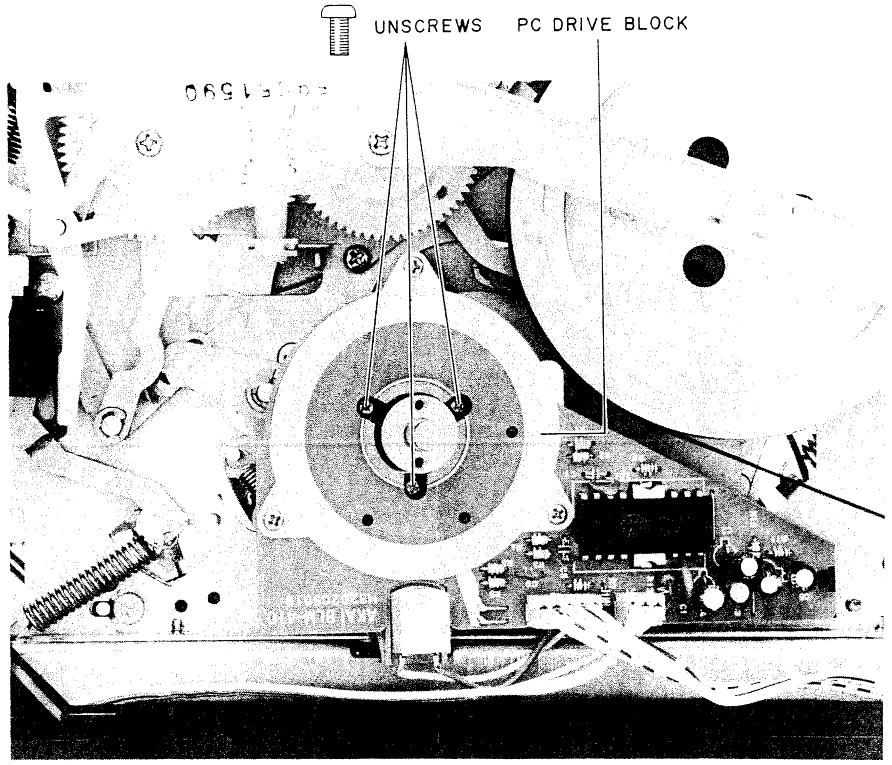

UNSCREWS
PC DRIVE BLOCK

Fig. 6-3

6) Remove three screws fixing Lower Drum Assembly from the bottom as shown in Fig. 6-4.

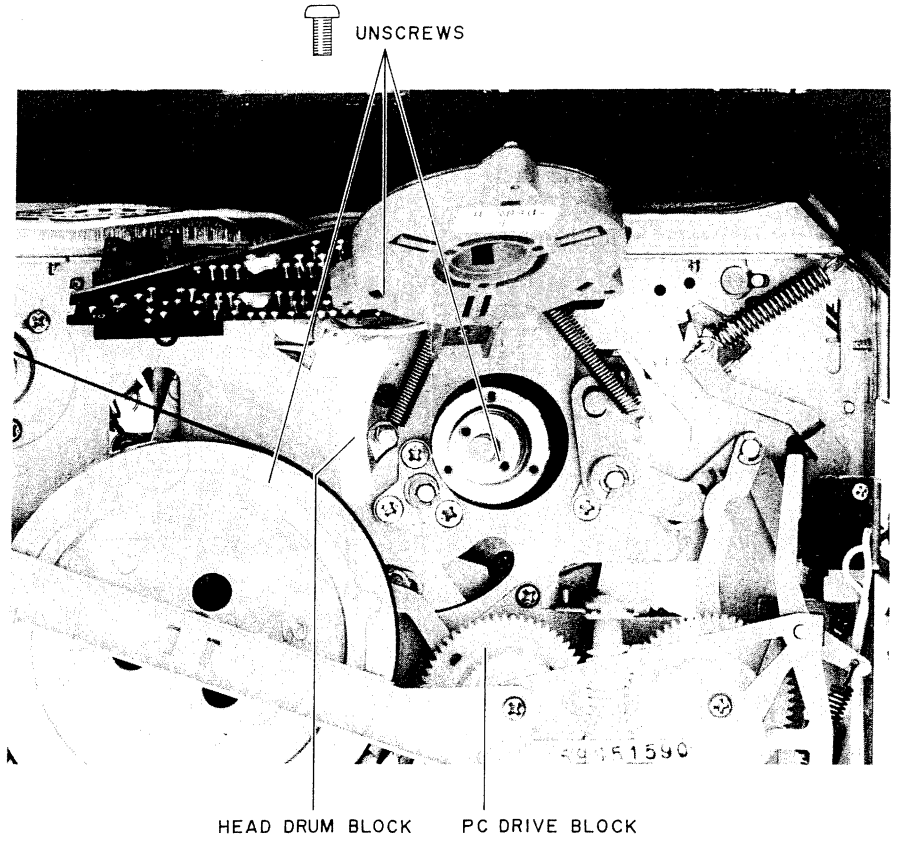

UNSCREWS
HEAD DRUM BLOCK
PC DRIVE BLOCK

Fig. 6-4

7) Unsolder eight wires (BLK, BLU, WHT, BRN, GRY, RED, YLW, GRN) on RELAY PCB.

Remove two screws fixing STATOR COIL ASSY with HEAD DRUM BLOCK (Refer to Fig. 6-5)

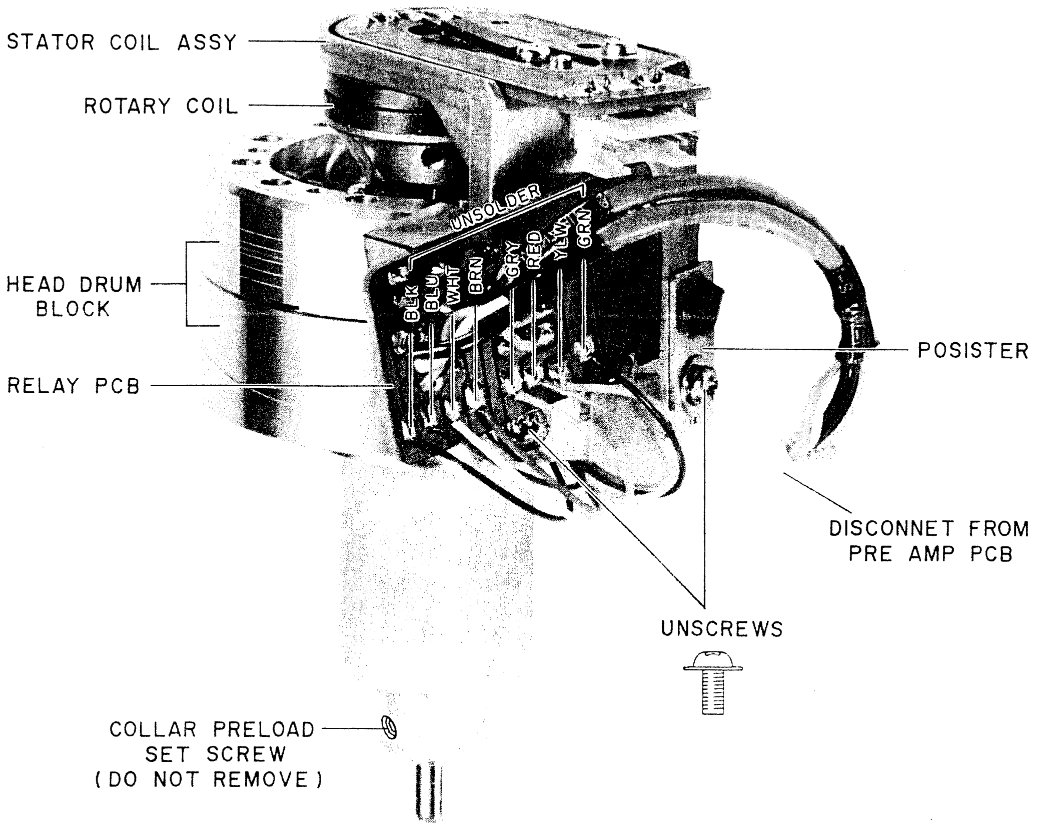

STATOR COIL ASSY
ROTARY COIL
HEAD DRUM BLOCK
RELAY PCB
UNSOLDER
BLK
BLU
WHT
BRN
GRY
RED
YLW
GRN
POSISTER
DISCONNET FROM PRE AMP PCB
UNSCREWS
COLLAR PRELOAD SET SCREW (DO NOT REMOVE)

Fig. 6-5

8) Unsolder the four wires (ORG x 2, RED, BRN) connected between the Rotary Coil and the Upper Drum, and unscrew the hexagon screw (1.5mm), then pull out the Rotary Coil. (Refer to Fig. 6-6)

Caution: Do not attempt to remove the Collar Preload on the Lower Drum Assembly. If removed, a special jig is needed for its reinstallation.

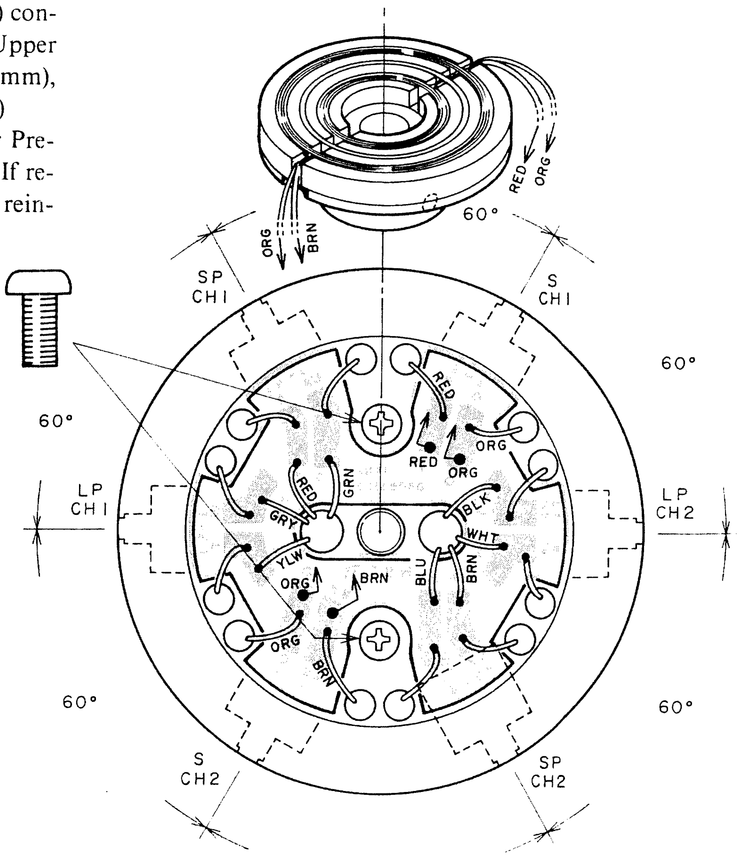

RED
ORG
ORG
BRN
60°
SP CH1
S CH1
60°
60°
LP CH1
LP CH2
RED
ORG
RED
ORG
RED
GRN
GRY
BLK
WHT
YLW
ORG
BRN
BLU
BRN
ORG
BRN
60°
60°
S CH2
SP CH2
60°

Fig. 6-6

9) Unsolder eight wires from lower rotary coil (BLK, WHT, BRN, BLU, YLW, GRY, RED, GRN) (Refer to Fig. 6-6)
10) Remove two screws fixing UPPER DRUM and take off UPPER DRUM.
11) Install the new UPPER DRUM (BV-V1039A120A)
12) Resolder eight wires which are unsoldered at step 9.
13) Install the ROTARY COIL without tightened screw and resolder four wires which are unsoldered at step 8
14) Install the STATOR COIL and tighten two screws which are removed at step 7, resolder eight wires from lower rotary coil.
15) Tighten the ROTARY COIL fixing screws with the THICKNESS GAUGE (AJ-751767) or a substitute as 0.2 ~ 0.25 mm gap shown in Fig. 6-7.

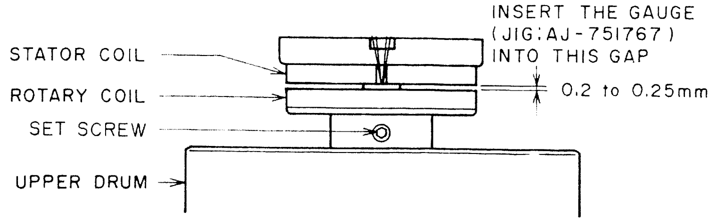

INSERT THE GAUGE (JIG:AJ-751767) INTO THIS GAP
STATOR COIL
ROTARY COIL
0.2 to 0.25mm
SET SCREW
UPPER DRUM

Fig. 6-7

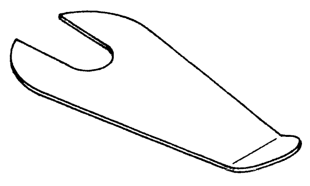

THICKNESS = 0.2 mm

Fig. 6-8

16) Install the HEAD BLOCK and other parts in revers order from step 6.

Caution: The position of the PG magnets on the ROTOR PART are located as shown in Fig. 6-9.

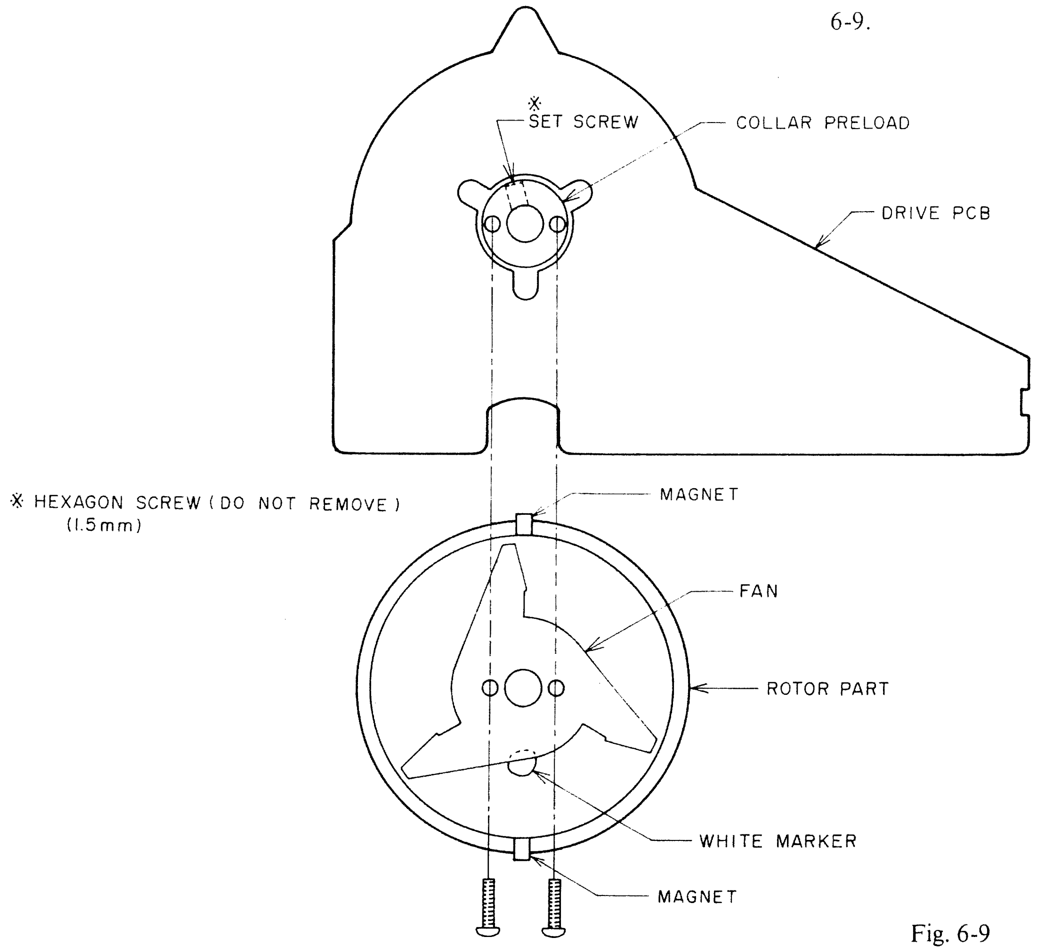

※ SET SCREW
COLLAR PRELOAD
DRIVE PCB
※ HEXAGON SCREW (DO NOT REMOVE) (1.5mm)
MAGNET
FAN
ROTOR PART
WHITE MARKER
MAGNET

Fig. 6-9

6-2. AFTER REPLACEMENT

After replacement, the following adjustments and confirmations are necessary.

1) Confirmation of mechanical tracking (Control Head Position adjustment in 7-5).
2) PB Switching Point adjustment at SP/LP mode (Servo adjustment step 6).
3) REC Switching Point adjustment at SP/LP mode (Servo adjustment step 7).
4) Peaking adjustment (Video adjustment step 10).
5) REC Current adjustment (Video adjustment step 8).
6) FM REC Current adjustment (HIFI Audio adjustment step 2).
7) Audio Switching Pulse adjustment (HIFI Audio adjustment step 5).
8) Confirmation of Y/Chroma levels (Video adjustment step 18 & 19)
9) Confirmation of REC/PB LEVEL (HIFI AUDIO adjustment step 6)

VII. TAPE TRANSPORT ADJUSTMENT

7-1. TAPE GUIDE (R) ADJUSTMENT (Refer to Fig. 7-1)

1) Remove the Guide cap.
2) Set the Height Jig (AJ-750831) on the Mechanism chassis as shown in Fig. 7-1 and check the height of the lower face of the upper flange.
   If necessary, carefully adjust by turning the nut.

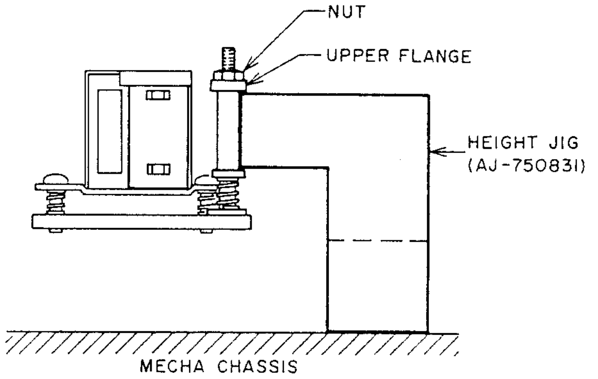

NUT
UPPER FLANGE
HEIGHT JIG
(AJ-750831)
MECHA CHASSIS

Fig. 7-1

7-2. SUPPLY TAPE GUIDE (L) ADJUSTMENT (Refer to Fig. 7-2)

1) Set the cassette tape and achieve PLAY mode.
2) Make adjustment with the supply guide height adjustment nut, so that the lower part of the tape will pass the lower part of the guide pole without curling as shown in Fig. 7-2.

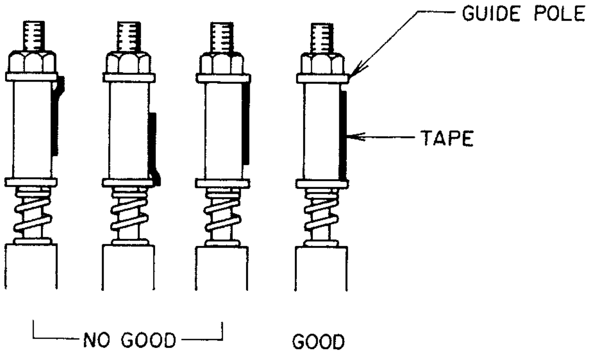

GUIDE POLE
TAPE
NO GOOD
GOOD

Fig. 7-2

7-3. GUIDE ROLLER HEIGHT ADJUSTMENT (Refer to Figs. 7-3 to 7-6)

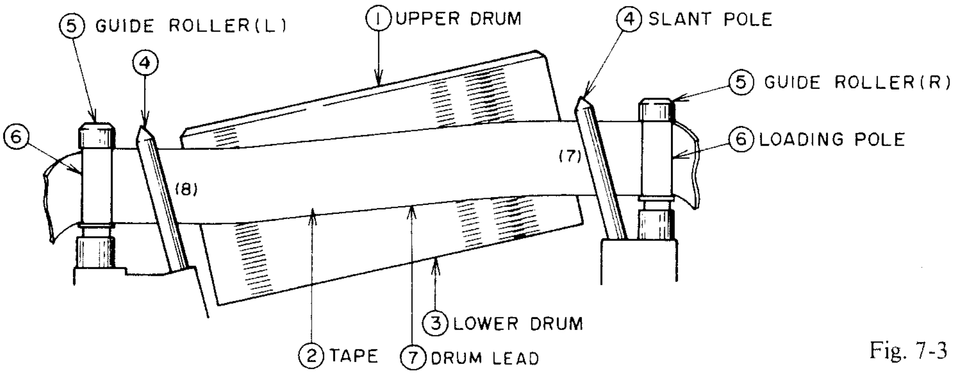

⑤ GUIDE ROLLER (L)
④
⑥
① UPPER DRUM
④ SLANT POLE
⑤ GUIDE ROLLER (R)
⑥ LOADING POLE
(7)
(8)
③ LOWER DRUM
② TAPE
⑦ DRUM LEAD

Fig. 7-3

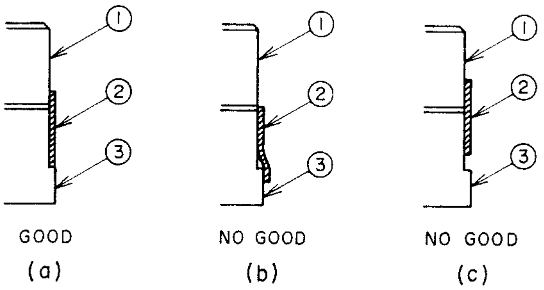

①
②
③
GOOD
(a)
NO GOOD
(b)
NO GOOD
(c)

Fig. 7-4

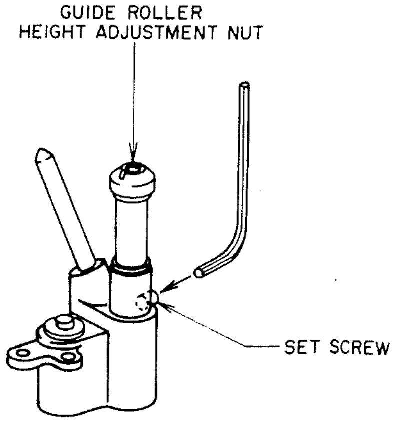

GUIDE ROLLER
HEIGHT ADJUSTMENT NUT
SET SCREW

Fig. 7-6

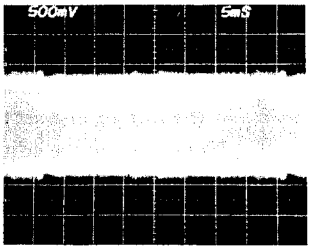


Fig. 7-5

1) Slightly loosen the set screw at the lower part of the Guide roller so that the Guide roller can be adjusted with reasonable tightness (See Fig. 7-6)
2) Connect an oscilloscope to TP7 (FM envelope out) of the Video PC Board.
3) Set the Reference tape (AT-750795) and achieve PLAY mode.
4) Ensuring it that the oscilloscope shows such a waveform as shown in Fig. 7-5 and also watching the point ⑦ of Fig. 7-3, adjust the height of the Guide roller (R) so that the tape runs without curling as shown in Fig. 7-4 (a).
5) Similarly, adjust the height of the guide roller (L) watching the waveform on the oscilloscope and the point ⑦ of Fig. 7-3.
6) Make sure that there is no shaking in the picture on the monitor TV.
7) Fix the Guide roller with the set screw.

7-4. AUDIO/CONTROL HEAD HEIGHT, TILT AND AZIMUTH ADJUSTMENT

(Refer to Fig. 7-7 to 7-9)

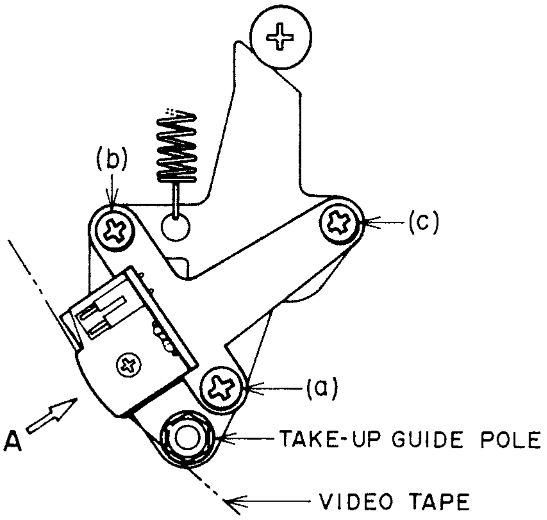


Fig. 7-7

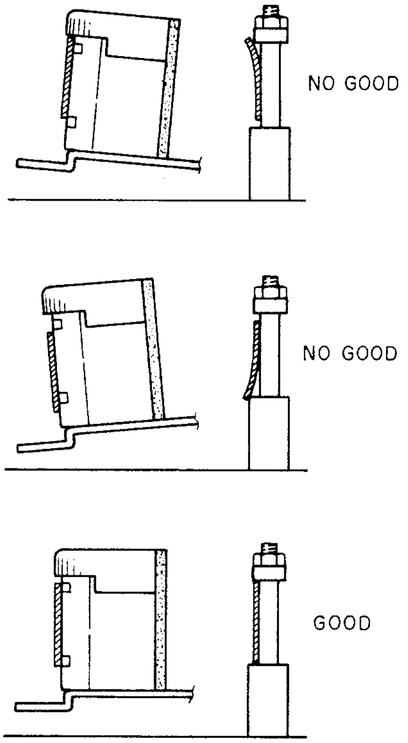


Fig. 7-9

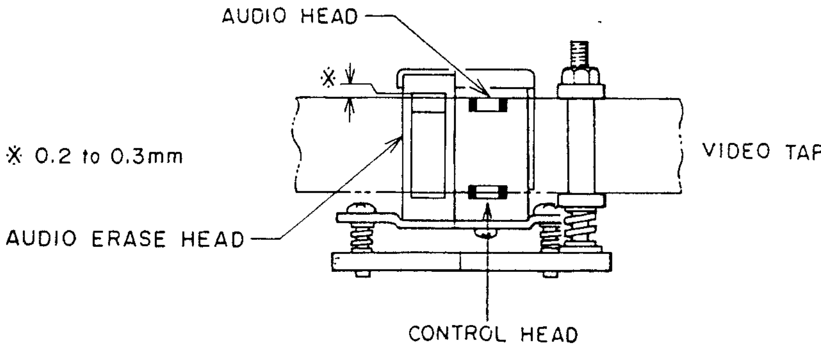


Fig. 7-8

1) Connect an AC Voltmeter to Audio Out.
2) Playback the Reference tape (AT-750795).
3) Turn screw (a), (b) and (c) slightly in order but by exactry the same amount. Adjust the audio output levle to its maximum. Take screw (a) as your standard and use screw (b) for azimuth adjustment. Adjust screw (c) until there is no tape wrinkle in the guide pole section, the audio output level is at maximum and there is the minimum possible level fluctuation.
Then raise and lower screw (a) very slightly and adjust (b) and (c), and set to the point for maximum output.

Note: Repeat the adjustment of Tape guide height, Guide roller height and AUDIO/CTL Head several times in order to achieve the perfect tape running.

7-5. CONTROL HEAD POSITION ADJUSTMENT (Refer to Fig. 7-10)

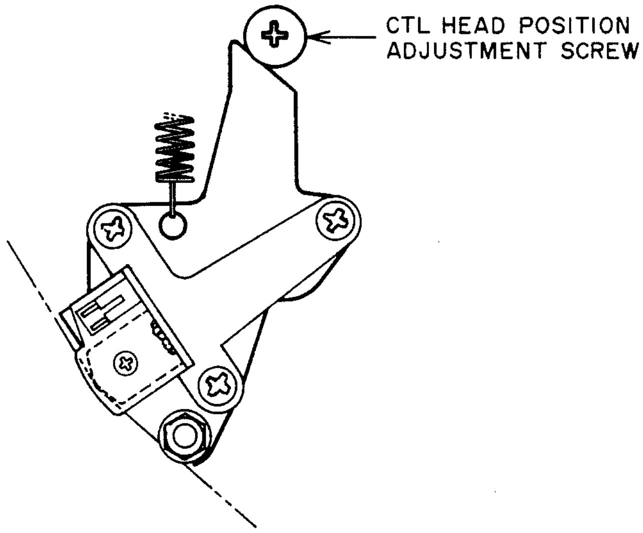


Fig. 7-10

1) Connect an oscilloscope to TP7 (pre-out) of the Video PC Board.
2) Set the Reference tape (AT-750795) and initiate play mode.
3) While watching the waveform on the oscilloscope, also watching the monitor screen and push the TRACKING Button on the front panel.
   Confirm the tracking marker in which direction the maximum point of the waveform is located from the center position.
4) Turn back the tracking marker to the center position, and carry out the following (a) or (b) adjustment.
   (a) If the maximum point of the waveform is reached by moving the tracking marker to Left side from the center position, turn the adjustment driver counter-clockwise and make adjustment to maximum point.
   (b) If the maximum point of the waveform is reached by moving tracking marker to right side from the center position, turn the adjustment driver clockwise and make adjustment to maximum point.

Note: Make these adjustments only after the tape running is completely adjusted.

7-6. ADJUSTMENT OF QUICK FINDER (REVIEW) RUN (Refer to Figs. 7-11, 7-12)

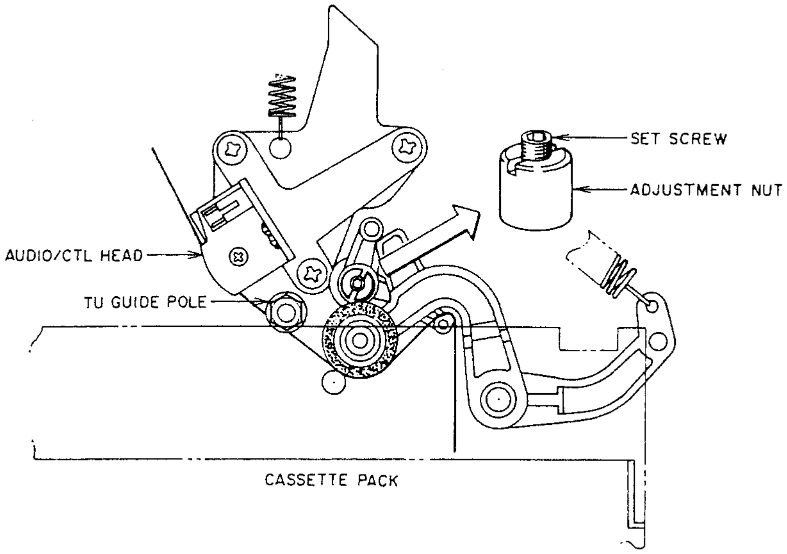


Fig. 7-11

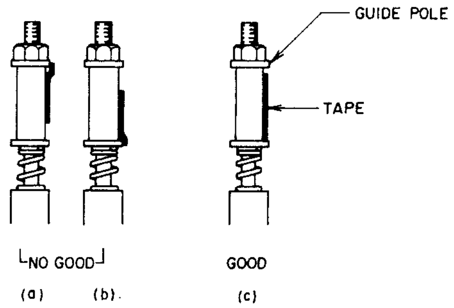


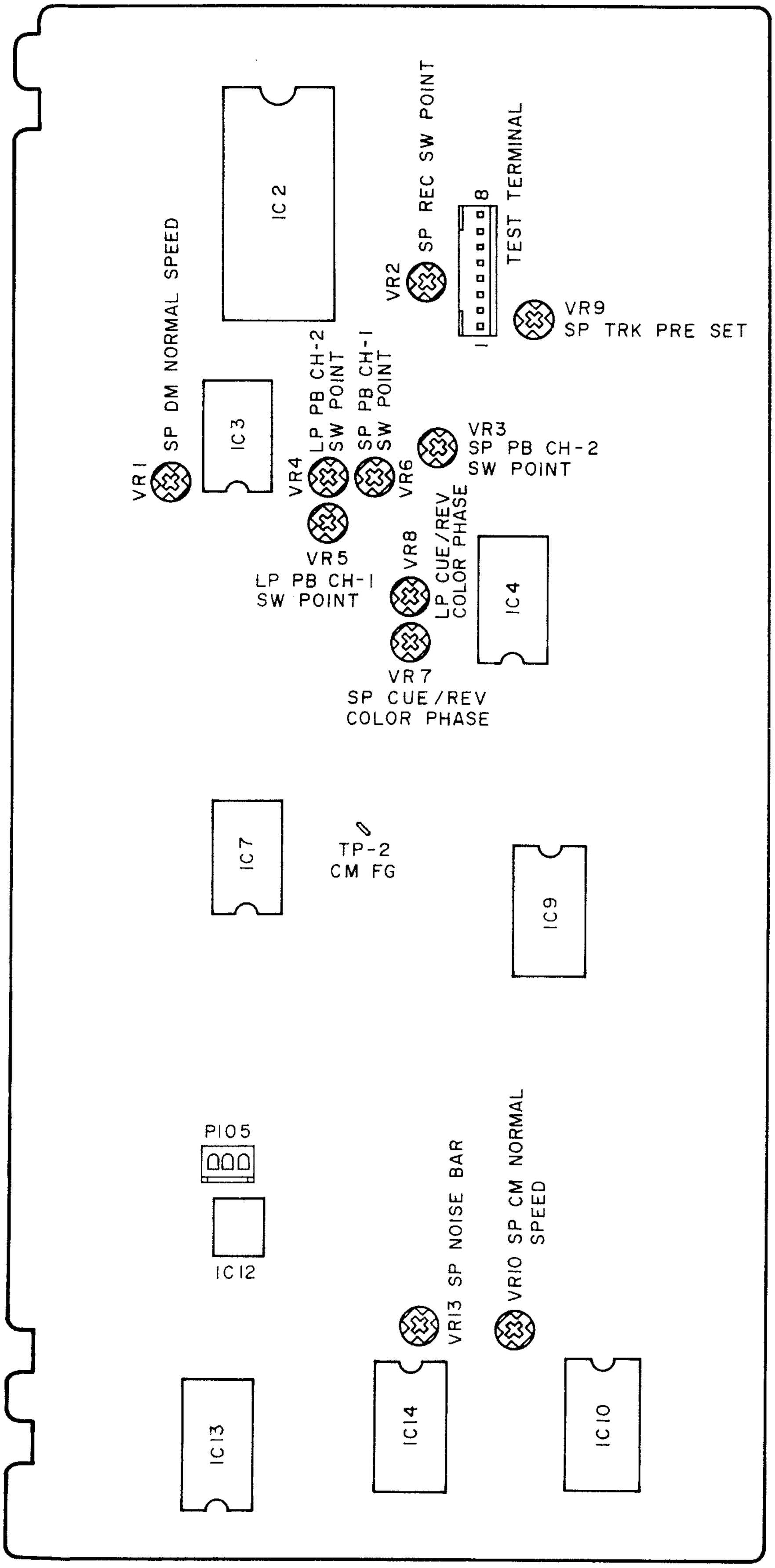
Fig. 7-12

1) Set a recording and playback tape E-240 and wind it up.
2) Press the REVIEW button to initiate REVIEW mode.
3) Loosen the set screw shown in Fig. 7-11 so that the adjustment nut can be turned.
4) While watching the tape running on the take-up guide pole, turn the adjustment screw slowly so as to eliminate the curling of the tape (Fig. 7-12 (c)).
5) Tighten the set screw and fix the adjustment screw.
6) After the completion of adjustment, press the STOP button once, and after unloading the tape, recheck the review run.

Note: If the adjustment nut is turned too fast, some deviation may be found after adjustment because the tape running does not follow such a fast pace.

VIII. SERVO ADJUSTMENT

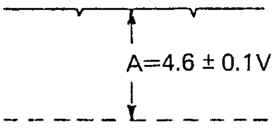
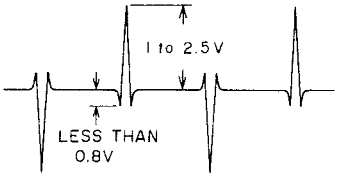
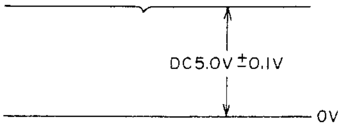
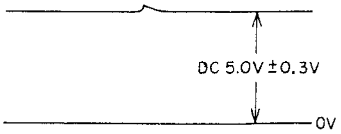
8-1. SERVO ADJUSTMENT (FOR MODELS VS-12)

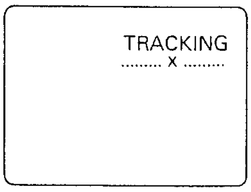
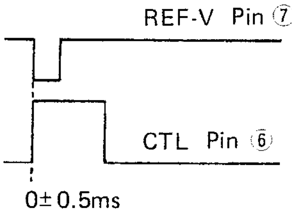
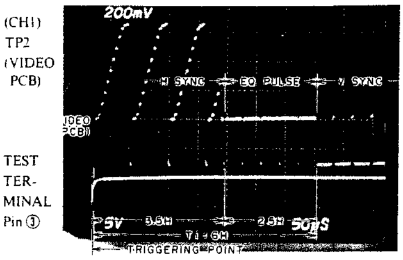
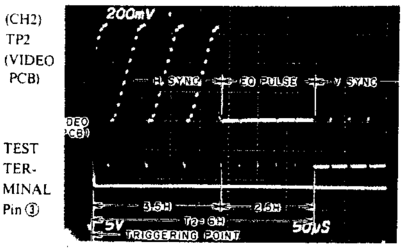

IC2
IC3
IC4
IC7
IC9
IC10
IC12
IC13
IC14
P105
VR1 SP DM NORMAL SPEED
VR2 SP REC SW POINT
1
8
TEST TERMINAL
VR9 SP TRK PRE SET
VR4 LP PB CH-2 SW POINT
VR6 SP PB CH-1 SW POINT
VR3 SP PB CH-2 SW POINT
VR5 LP PB CH-1 SW POINT
VR8 LP CUE/REV COLOR PHASE
VR7 SP CUE/REV COLOR PHASE
TP-2 CM FG
VR13 SP NOISE BAR
VR10 SP CM NORMAL SPEED

TEST TERMINAL

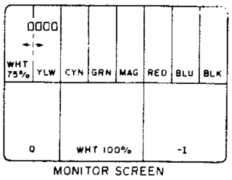
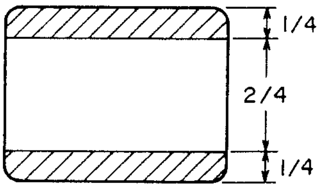
PIN 1	DM SPEED
PIN 2	GND
PIN 3	SW POINT
PIN 4	CM SPEED
PIN 5	PG PULSE
PIN 6	WAVE FORMED CTL PULSE
PIN 7	REF-V
PIN 8	CTL PULSE

Fig. 8-1 Servo PC Board adjustment points

Step	Adjustment Item	Input	Mode	Test Point	Adjustment Parts	Result & Remarks
1	AFC	Color Bar from Color Bar Generator	EE	TP14 (Video PCB)	VR12	 Adjust VS12 so that A is within DC 4.6V ± 0.1V.
2	Drum Motor PG level	Reference Test Tape (AT-750795)	SP PB	Test Terminal (Pin ⑤)	Confirmation	 Confirm the Drum Servo phase error voltage is within DC 5.0V ±0.1V.
3	Drum Motor Normal Speed	Reference Tape (AT-750795)	SP PB	Test Terminal (Pin ①)	VR1	 Adjust so that the Drum Servo phase error voltage is within DC 5.0V ± 0.1V.
		Self Recorded Tape at LP Mode	LP PB	Test Terminal (Pin ①)	Confirmation	Confirm the Drum Servo phase error voltage is within DC 5.0V ±0.1V.
4	Capstan Motor Normal Speed	Reference Tape (AT-750795)	SP PB	Test Terminal (Pin ④)	VR10	 Adjust so that the Capstan servo phase error voltage is within DC 5.0V ± 0.3V.
		Self Recorded Tape at LP Mode	LP PB	Test Terminal (Pin ④)	Confirmation	Confirm the Capstan Servo phase error voltage is within DC 5.0 V±0.5V.

Step	Adjustment Item	Input	Mode	Test Point	Adjustment Parts	Result & Remarks
5	Tracking Preset	Reference Test Tape (AT-750795)	SP PB	Test Terminal (Pin ⑥) (Pin ⑦)	VR9	 Tracking marker "X" on the monitor screen is set to the center of the dotted line by pressing the TRACKING BUTTON on the Front Panel.  Adjust VR9 so that the down edge of the REF-V (Servo standard signal) is lined up with the phase of CTL pulse.
		Self Recorded Tape at LP Mode	LP PB	Test Terminal (Pin ⑥) (Pin ⑦)	Confirmation	Confirm so that the up edge of the REF-V and raising up waveform of CTL pulse is within 0 ± 1.0 ms.
6	PB Switching Point	Reference Test Tape (AT-750795)	SP PB	TP2 (Video PCB) Test Terminal (Pin ③)	VR6 (CH1) VR3 (CH2)	  Adjust T1 with VR5 and T2 with VR4 to 6.5H ±0.3H The difference between T1 and T2 should be within 0.5H.
		Reference Test Tape (AT-751775)	LP PB	TP2 (Video PCB) Test Terminal (Pin ③)	VR5 (CH1) VR4 (CH2)	Adjust T1 and T2 and T2 to·6.5H ±0.3H in the same way as above at LP mode.

*Refer to Fig. 8-3 on page 57 for the adjustment in step 7.

Step	Adjustment Item	Input	Mode	Test Point	Adjustment Parts	Result & Remarks
7	REC Switching Point	Color Bar from Color Bar Generator	SP REC	TP2 (Video PCB)	VR203 (Linear Audio PCB)	Adjust T1 and T2 to 6.5H ±0.3H as the same manner in Step 6.
			LP REC	Test Terminal (Pin ③)	VR202 (Linear Audio PCB)	Adjust T1 and T2 to 6.5H ±0.3H in the same way as above at SP mode.
8	CUE/REV Color Phase	Color Bar Test Tape (AT-750797)	SP CUE	Monitor Screen	VR7	 0000 WHT 75% YLW CYN GRN MAG RED BLU BLK Q WHT 100% -I MONITOR SCREEN Adjust VR7 so that the blur between the color bars is minimum.
			SP REV	Monitor Screen	Confirmation	Confirm the blur between the color bars is minimum.
		Self Recorded Tape at LP Mode	LP CUE	Monitor Screen	VR8	Adjust VR8 so that the blur between the color bars is minimum.
			LP REV	Monitor Screen	Confirmation	Confirm the blur between the color bars is minimum.
9	Noise Bar	Self Recorded Tape at SP Mode	SP STILL	Monitor Screen	VR13	 1. Disconnect the connector P105. 2. Keep the STILL Button pressing, and adjust VR13 so that the Noise Bar is located within 1/4 Part from the upper or lower of the Monitor Screen.

8-2. HIFI AUDIO ADJUSTMENT (FOR MODELS VS-12)

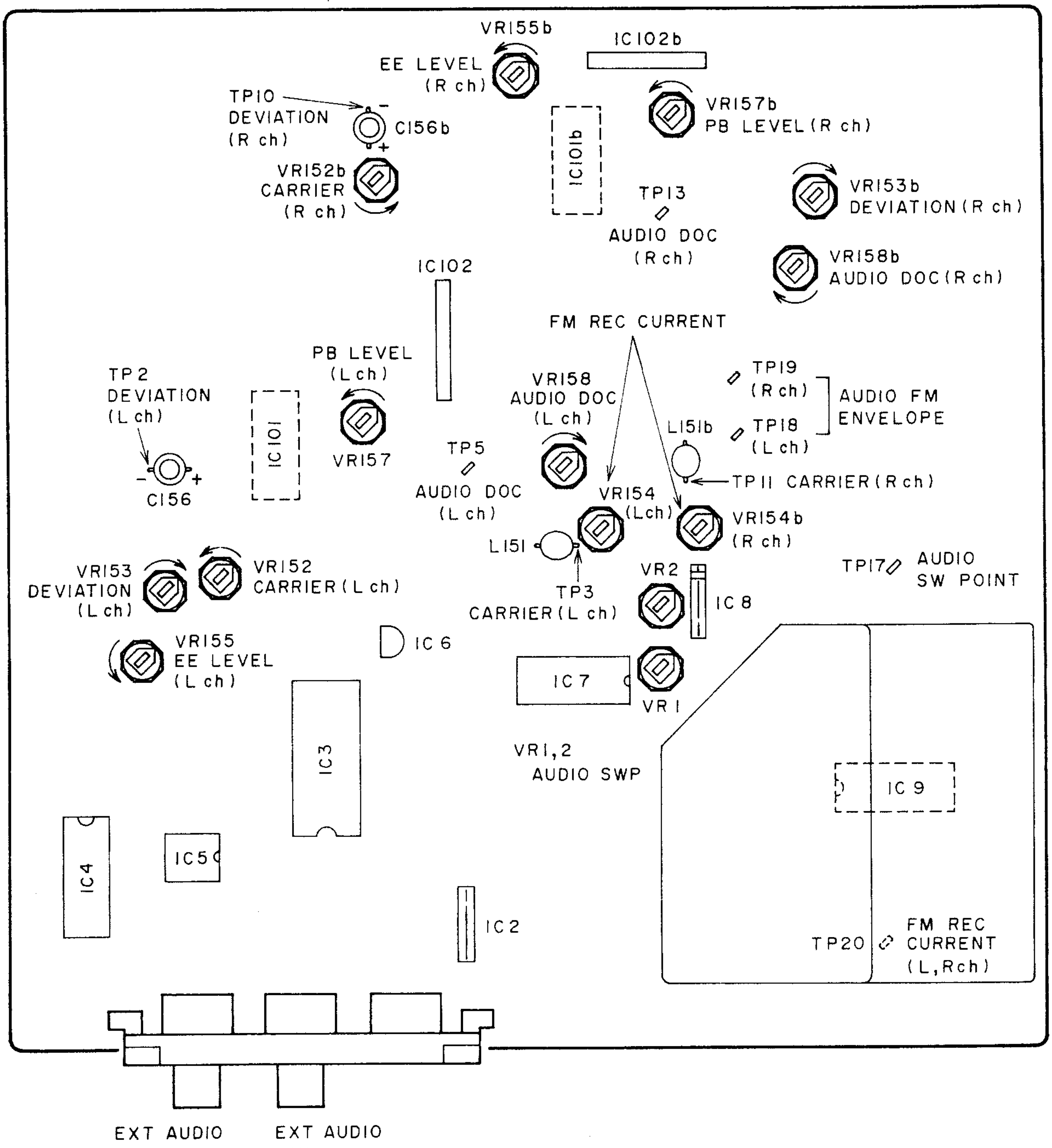
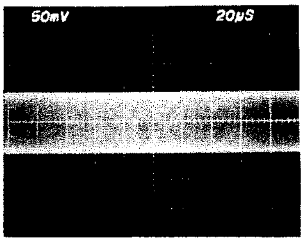
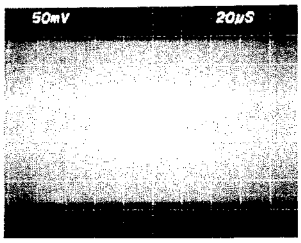

VR155b
EE LEVEL (R ch)
IC102b
TP10 DEVIATION (R ch)
C156b
VR157b PB LEVEL (R ch)
VR152b CARRIER (R ch)
IC101b
TP13 AUDIO DOC (R ch)
VR153b DEVIATION (R ch)
VR158b AUDIO DOC (R ch)
IC102
FM REC CURRENT
PB LEVEL (L ch)
TP2 DEVIATION (L ch)
IC101
VR157
C156
VR158 AUDIO DOC (L ch)
TP5 AUDIO DOC (L ch)
TP19 (R ch)
TP18 (L ch)
AUDIO FM ENVELOPE
L151b
TP11 CARRIER (R ch)
VR154 (Lch)
VR154b (R ch)
L151
TP3 CARRIER (L ch)
VR2
IC8
TP17 AUDIO SW POINT
VR153 DEVIATION (L ch)
VR152 CARRIER (L ch)
VR155 EE LEVEL (L ch)
IC6
IC7
VR1
VR1,2 AUDIO SWP
IC3
IC9
IC4
IC5
IC2
TP20
FM REC CURRENT (L,Rch)
EXT AUDIO OUT
EXT AUDIO IN

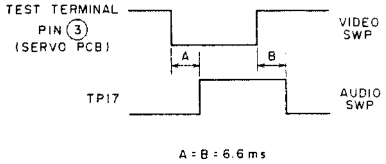
Fig. 8-2. HIFI Audio PCB ADJ Points

TEST POINTS

TP2:	DEVIATION (L CH)
TP3:	CARRIER (L CH)
TP5:	AUDIO DOC (L CH)
TP10:	DEVIATION (R CH)
TP11:	CARRIER (R CH)
TP13:	AUDIO DOC (R CH)
TP17:	AUDIO SW POINT
TP20:	FM REC CURRENT (L, R)
TP18:	AUDIO FM ENVELOPE (L), TP19 (R)

Caution : Set the Audio Selector to HIFI, stereo.

Step	Adjustment Item	Input	Mode	Test Point	Adjustment Parts	Result & Remarks
1	Carrier Frequency	PAL Color Bar from Color Bar Generator, No Audio Input	EE	TP3 (Lch) TP11 (Rch)	VR152 (Lch) VR152b (Rch)	1. Connect a frequency counter to TP3. 2. Adjust VR152 so that the frequency counter reads 1.4 MHz ± 10 kHz. 1. Connect a frequency counter to TP11. 2. Adjust VR152b so that the frequency counter reads 1.8 MHz ± 10 kHz.
2	FM REC Current	PAL Color Bar from Color Bar Generator, No Audio Input	REC	TP20	VR154 (Lch)	 1. Connect an oscilloscope to TP20. 2. Adjust VR154 so that 100 mV $^{+10}_{-40}$ mV.
					VR154b (Rch)	 3. Adjust VR154b so that 200 mV $^{+10}_{-0}$ mV.
3	EE Level	PAL Color Bar from Color Bar Generator & Audio 400 Hz, -8 dBm Input	EE	Audio Out (Lch) Audio Out (Rch)	VR155 (Lch) VR155b (Rch)	1. Connect an AC voltmeter to Audio Out (LCH). 2. Adjust VR155 so that the voltmeter reads -6.0 ±0.5 dBm. 1. Connect an AC voltmeter to Audio Out (RCH) terminal. 2. Adjust VR155b so that the voltmeter reads -6.0 ±0.5 dBm.
4	Deviation	PAL Color Bar from Color Bar Generator & Audio 400 Hz, -8 dBm Input	REC	TP2 (Lch) TP10 (Rch)	VR153 (Lch) VR153b (Rch)	1. Connect an AC voltmeter to TP2. 2. Adjust VR153 so that the voltmeter reads -26.5 dBm. 1. Connect a AC voltmeter to TP10. 2. Adjust VR153b so that the voltmeter reads -26.5 dBm.

Step	Adjustment Item	Input	Mode	Test Point	Adjustment Parts	Result & Remarks
5	Audio Switching Pulse	PAL Color Bar Test Tape (AT-750795)	PB	TP17 (HIFI Audio PCB) & Test Terminal Pin ③ (Servo PCB)	VR-1 (B) VR-2 (A)	 TEST TERMINAL PIN ③ (SERVO PCB) VIDEO SWP A B TP17 AUDIO SWP A = B = 6.6 ms Adjust VR1 & VR2 so that A = B = 6.6 msec as shown above.
6	REC/PB Level	PAL Color Bar from Color Bar Generator Audio 400 Hz, –8 dBm Input	REC/PB (SP)	Audio Out (Lch)	VR157 (Lch)	1. Connect an AC voltmeter to Audio Out (LCH). 2. Adjust VR157 so that the meter reads –6.0 ±0.5 dBm. 3. Distortion less than 0.3%.
				Audio Out (Rch)	VR157b (Rch)	1. Connect an AC voltmeter to Audio Out (RCH). 2. Adjust VR157b so that the meter reads –6.0 ±0.5 dBm. 3. Distortion less than 0.3%.
7	Audio DOC	PAL Color Bar Test Tape (AT-750797)	PB	TP5 (Lch)	VR158 (Lch)	1. Connect a DC voltmeter to TP5. 2. Adjust VR158 so that the meter reads 1.3V ±0.1V.
				TP13 (Rch)	VR158b (Rch)	1. Connect a DC voltmeter to TP13. 2. Adjust VR158b so that the meter reads 1.3V ±0.1V.
8	Frequency Response	PAL Color Bar from Color Bar Generator, Audio Input 20 Hz, 100 Hz, 1kHz, 10 kHz, 15 kHz, –28 dBm	REC/PB (SP)	Audio Out	Confirmation	20 Hz -26^{+0}_{-3} dBm 100 Hz –26 ±0.5 dBm 10 kHz –26 ±1.0 dBm 15 kHz -26^{+0}_{-4} dBm

8-3. LINEAR AUDIO ADJUSTMENT (FOR MODELS VS-12)

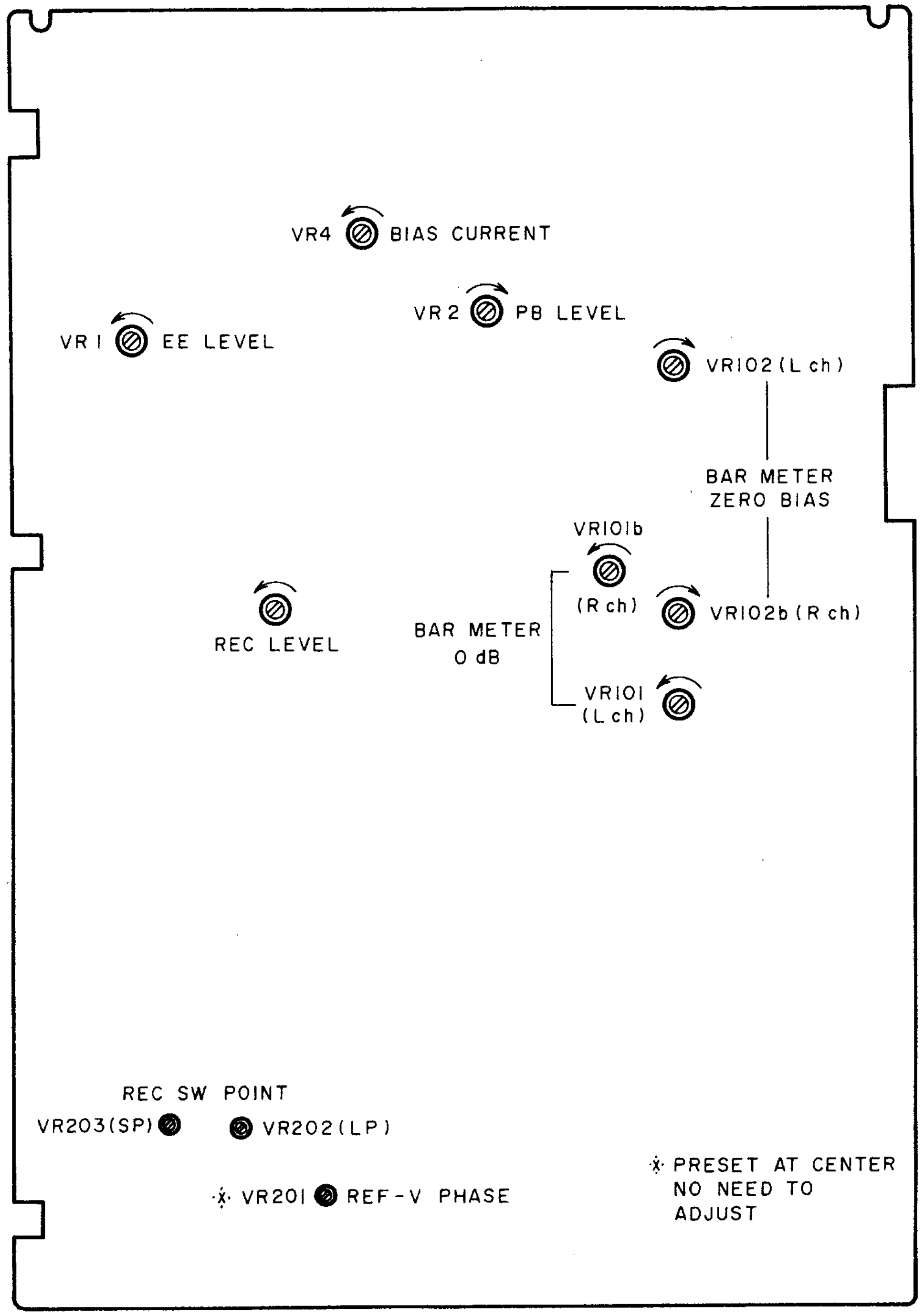

VR4 BIAS CURRENT
VR2 PB LEVEL
VR1 EE LEVEL
VR102 (L ch)
BAR METER ZERO BIAS
VR101b
(R ch)
VR102b (R ch)
REC LEVEL
BAR METER 0 dB
VR101 (L ch)
REC SW POINT
VR203 (SP)
VR202 (LP)
※ VR201 REF-V PHASE
※ PRESET AT CENTER NO NEED TO ADJUST

Fig. 8-3 Linear Audio PCB ADJ Points

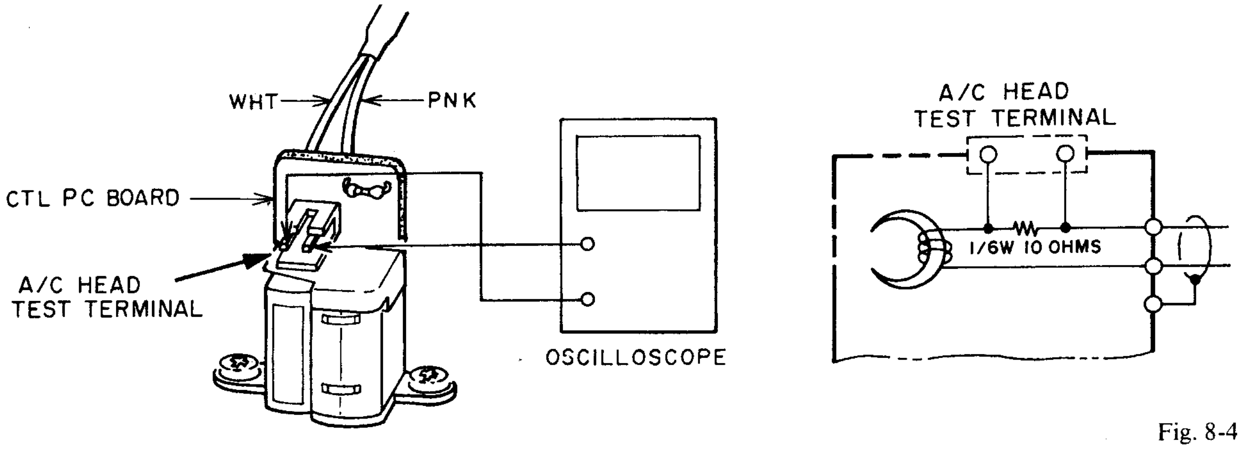
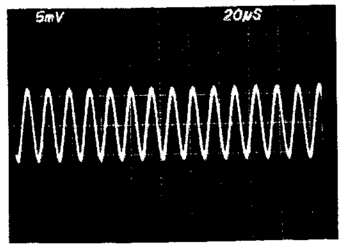

WHT
PNK
CTL PC BOARD
A/C HEAD TEST TERMINAL
OSCILLOSCOPE
A/C HEAD TEST TERMINAL
1/6W 10 OHMS

Fig. 8-4

Caution : Set the Audio Selector to Normal.

Step	Adjustment Item	Input	Mode	Test Point	Adjustment Parts	Result & Remarks
1	PB Level	Audio 1 kHz Reference Tape (AT-711880)	PB	Audio Out	VR2	–6.0 ±0.5 dBm
2	PB Head Azimuth	Audio 6 kHz Test Tape (AT-750795)	PB	Audio Out	Confirmation	-7.0^{+2}_{-4} dBm
3	PB S/N	PAL RF SWEEP Test Tape (AT-750802), No Audio Input	PB	Audio Out	Confirmation	Less than –46 dBm
4	EE Level	Audio Input 1 kHz, –8 dBm	EE	Audio Out	VR1	–6.0 ±0.5 dBm
5	Bias Frequency	No Signal Input	REC	Erase Head Terminals	Confirmation	1. Connect a frequency counter across Erase Head terminals. 70 ±4 kHz
6	Bias Current	No Signal Input	REC	A/C Head Test Terminals	VR4	 12 mVp-p
7	REC/PB Level	Audio Input 1 kHz, –8 dBm	REC/PB	Audio Out	VR3 (SP)	(SP) –6 dB ± 1 dBm Less than 3% Distortion (LP) Confirmation –6 ±2 dBm Less than 4% Distortion
8	Frequency Response	Audio Input 1k, 6k, 7k –28 dBm	REC/PB	Audio Out	Confirmation	(LP) –26 ±1 dBm at 1 kHz -26^{+3}_{-2} dBm at 6 kHz (SP) -26^{+3}_{-2} dBm at 7 kHz –25 ± 1 dBm at 1 kHz

8-4. AUDIO BAR METER ADJUSTMENT (FOR MODELS VS-12)

Step	Adjustment Item	Input	Mode	Test Point	Adjustment Parts	Result & Remarks
1	Zero Bias	Audio Input 1 kHz, –23 dBm	EE	Bar Meter LED Display	VR102 (Lch) VR102b (Rch)	1. See Note 1. 2. Adjust VR102 (Lch) and VR102b (Rch) to the point so that the first two LEDs from the left (L & Rch) are gone out.
2	0 dB Display	Audio Input 1 kHz, –8 dBm	EE	Bar Meter LED Display	VR101 (Lch) VR101b (Rch)	1. See Note 1. 2. Adjust VR101 (Lch) and VR101b (Rch) to the point so that all the green LEDs up to 0 dB are lit.
3	Meter Display Step	Audio Input 1 kHz, –8 dBm	EE	Bar Meter LED Display	Confirmation	See Note 2.

Note : 1. Leave the REC LEVEL button untouched after the Function button is pressed.

2. After the adjustment in Step 2, confirm that two orange LEDs are lit when the REC volume (+) is pressed once. Next, press the REC volume (–) once, and confirm that these two orange LEDs are gone out. Then, press the REC volume (–) once more, and confirm that the green LEDs between 0 dB and –3 dB are gone out.

8-5. VIDEO ADJUSTMENT

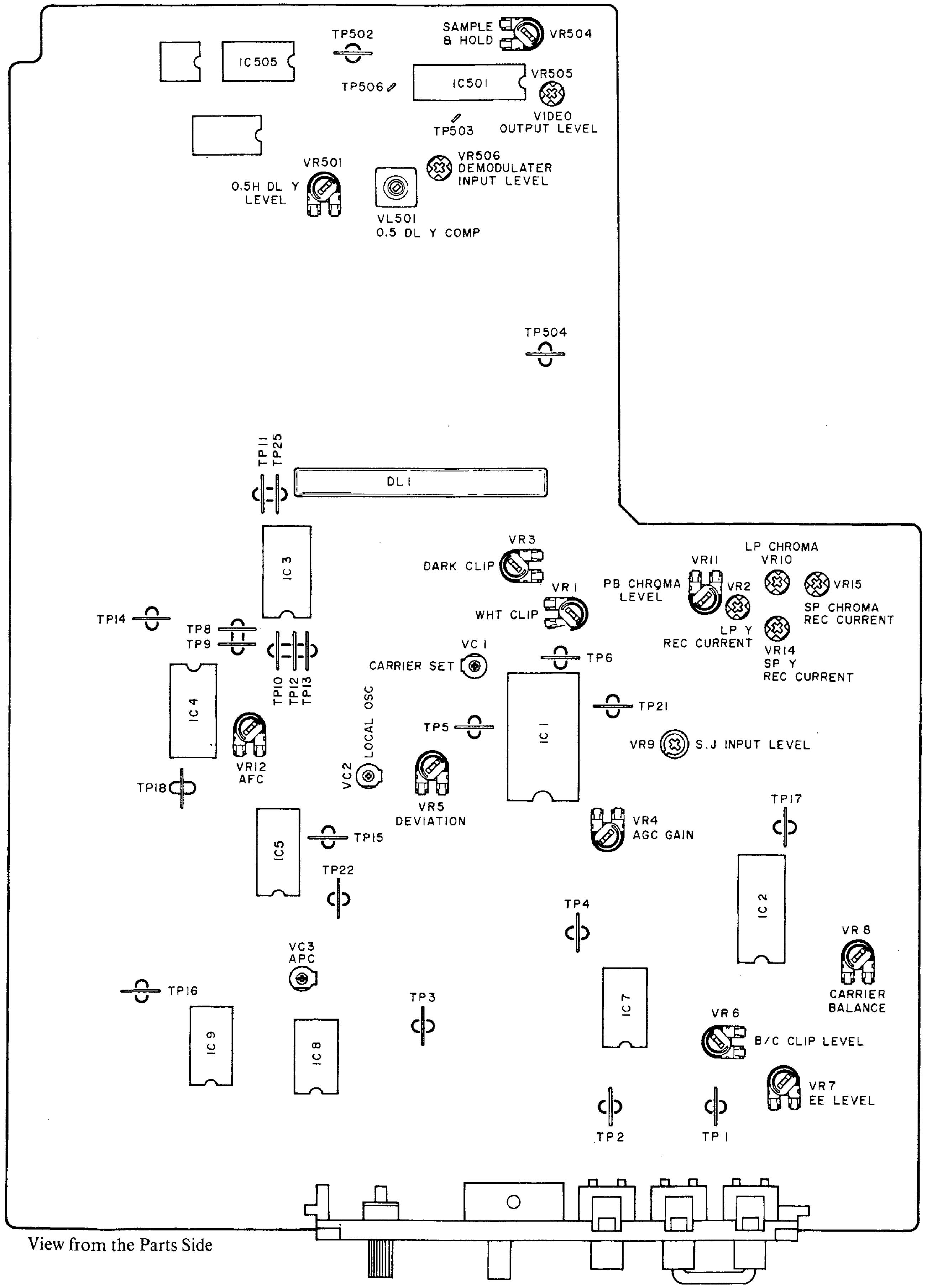

IC505
TP502
SAMPLE & HOLD
VR504
TP506
IC501
VR505
VIDEO OUTPUT LEVEL
TP503
VR501
0.5H DL Y LEVEL
VR506
DEMODULATER INPUT LEVEL
VL501
0.5 DL Y COMP
TP504
TP11
TP25
DL1
IC3
VR3
DARK CLIP
VR1
WHT CLIP
VR11
PB CHROMA LEVEL
VR2
LP CHROMA
VR10
VR15
SP CHROMA REC CURRENT
LP Y REC CURRENT
VR14
SP Y REC CURRENT
TP14
TP8
TP9
TP10
TP12
TP13
VC1
CARRIER SET
TP6
TP21
IC4
VR12
AFC
LOCAL OSC
VC2
TP5
VR5
DEVIATION
IC1
VR9
S.J INPUT LEVEL
TP18
IC5
TP15
TP22
VR4
AGC GAIN
TP17
IC2
TP4
VR8
CARRIER BALANCE
VC3
APC
TP16
IC9
IC8
TP3
IC7
VR6
B/C CLIP LEVEL
VR7
EE LEVEL
TP2
TP1
View from the Parts Side

Fig. 8-5. Video PC Board Adjustment Points

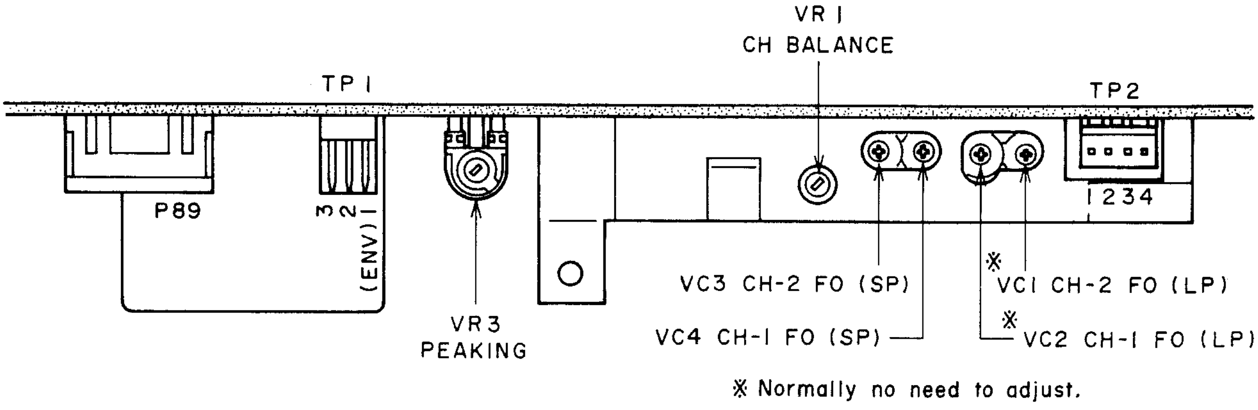

VR 1
CH BALANCE
TP 1
TP2
P89
3 2 1
(ENV)
1 2 3 4
VR3
PEAKING
VC3 CH-2 FO (SP)
VC4 CH-1 FO (SP)
※
VC1 CH-2 FO (LP)
※
VC2 CH-1 FO (LP)
※ Normally no need to adjust.

Fig. 8-6. Pre Amp PC Board Adjustment Points

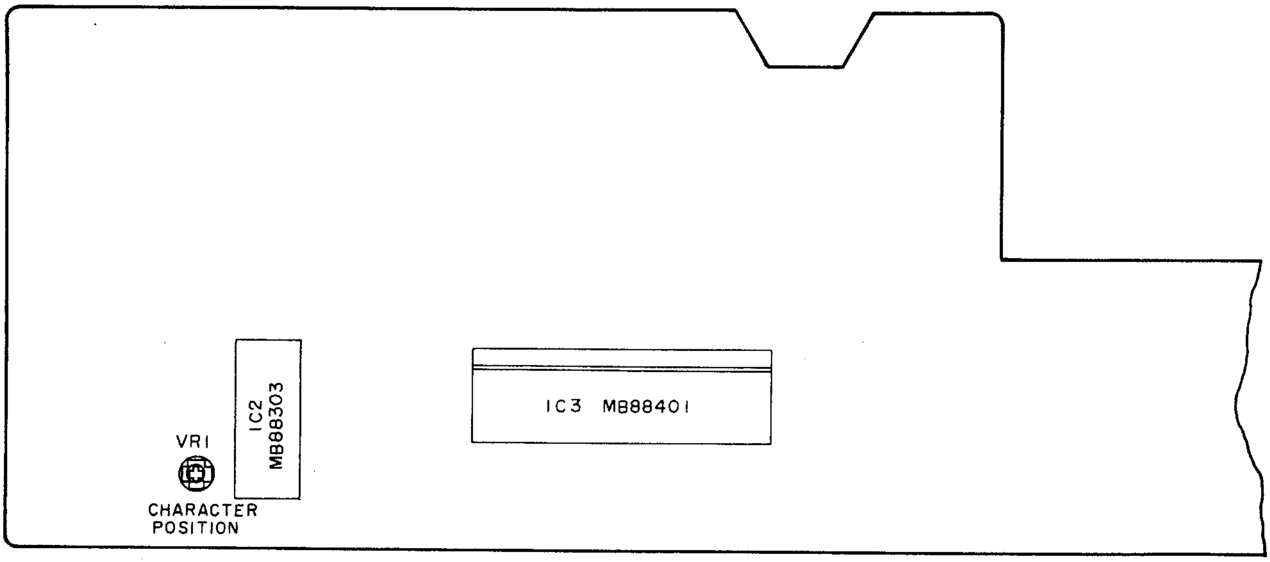
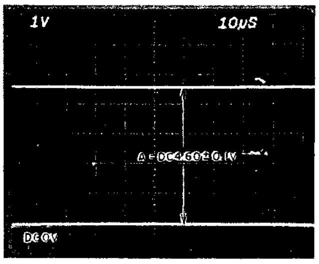
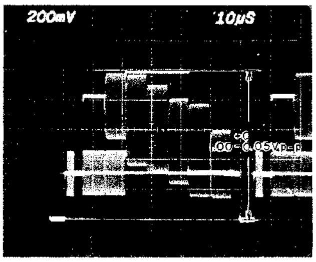
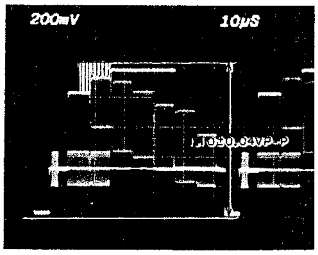
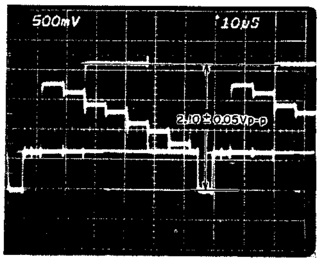
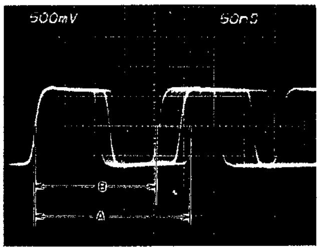
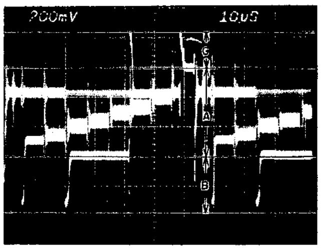

IC2
MB88303
IC3 MB88401
VR1
CHARACTER
POSITION

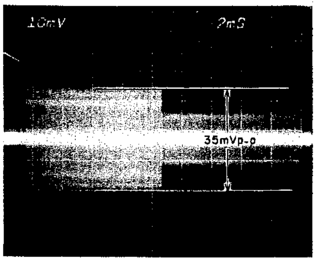
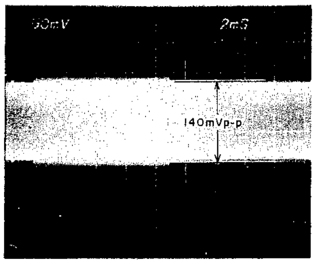
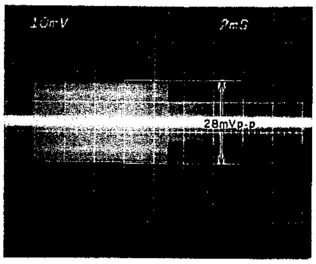
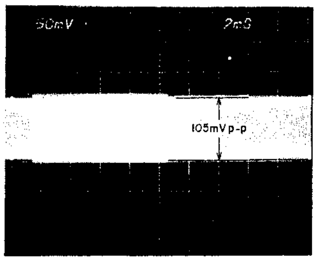
Fig. 8-7. Operation PC Board Adjustment Points

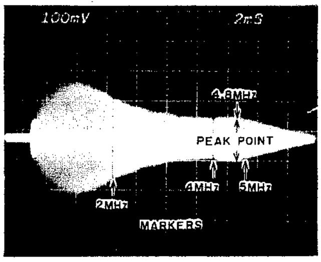
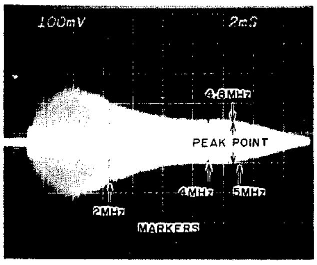
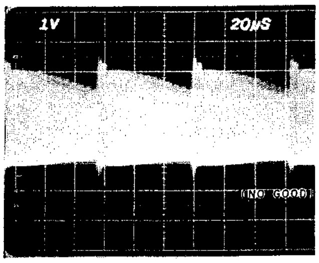
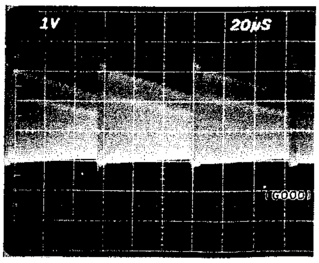
Step	Adjustment Item	Input	Mode	Test Point	Adjustment Parts	Result & Remarks
1	AFC	Color Bar from Color Bar Generator	EE	TP14	VR12	 Adjust VR12 so that A is within DC4.6V ±0.1V.
2	EE level	Color Bar from Color Bar Generator	EE	TP2	VR7	 1. Adjust VR7 so that the VIDEO Output (TP2) is within 1.00 ±0.05 Vp-p. 2. Confirm that RF output both Y & chroma signal) is appeared at TP3.
3	B/C Clip level	Color Bar from Color Bar Generator	PB	TP2	VR6	 1. Display charactor to the monitor screen. 2. Adjust so that the Video signal level is 1.10 ±0.05 Vp-p.
4	AGC Gain	Color Bar from Color Bar Generator	EE	TP5	VR4	 Adjust VR4 so that A is within 2.10 ±0.05 Vp-p.

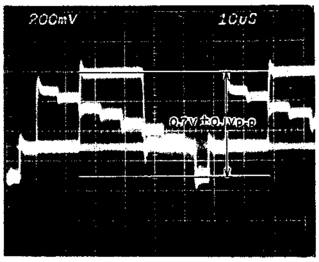
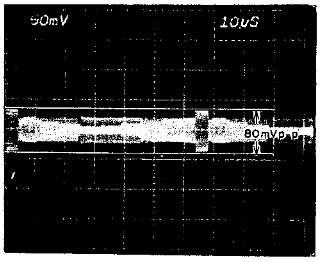
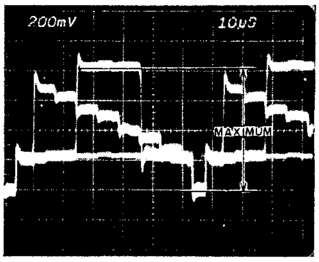
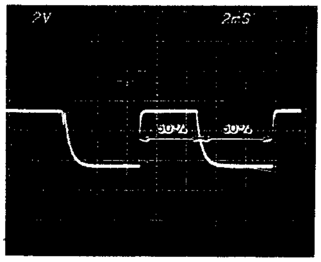
Caution:

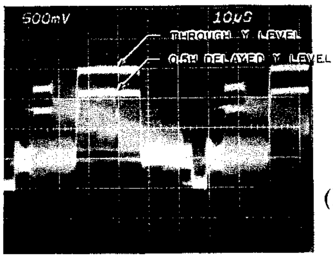
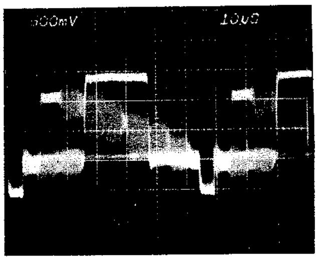
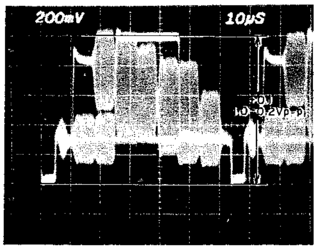
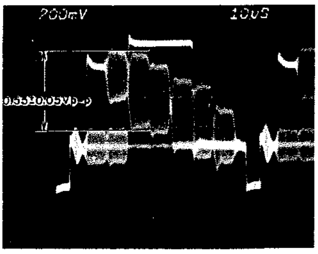
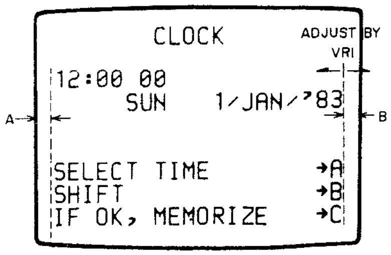
1. The output of the Color Bar Generator should be 1.0 Vp-p.
2. The video out terminal should be terminated with 75 ohms dummy or load (monitor T.V.).

Step	Adjustment Item	Input	Mode	Test Point	Adjustment Parts	Result & Remarks
5	APC OSC	Color Bar from Color Bar Generator	EE	TP10	VC3	1. Supply color bar signal to line input. 2. Connect a frequency counter and oscilloscope to TP10. 3. Set MODE SWITCH in COLOR 2 Position (For EK model, connect between Pin ② and Pin ⑪ of IC4 AN6362 on VIDEO PC BOARD). 4. Adjust VC3 as FREQUENCY COUNTER reads 5.060571 MHz ± 50 Hz.
6	FM OSC	Color Bar from Color Bar Generator	EE	TP21	VC1 (Carrier set) VR5 (Deviation)	 Carrier set A = 0.263 μs (3.8 MHz) Deviation B = 0.208 μs (4.8 MHz)
7	White Clip and Dark Clip	Color Bar from Color Bar Generator	EE	TP6	VR1 (White clip) VR3 (Dark clip)	 Adjust VR1 and VR3 so that the waveform at TP6 is as shown above. White clip A : B = 1.0 : 0.6 Dark clip A : C = 1.0 : 0.4

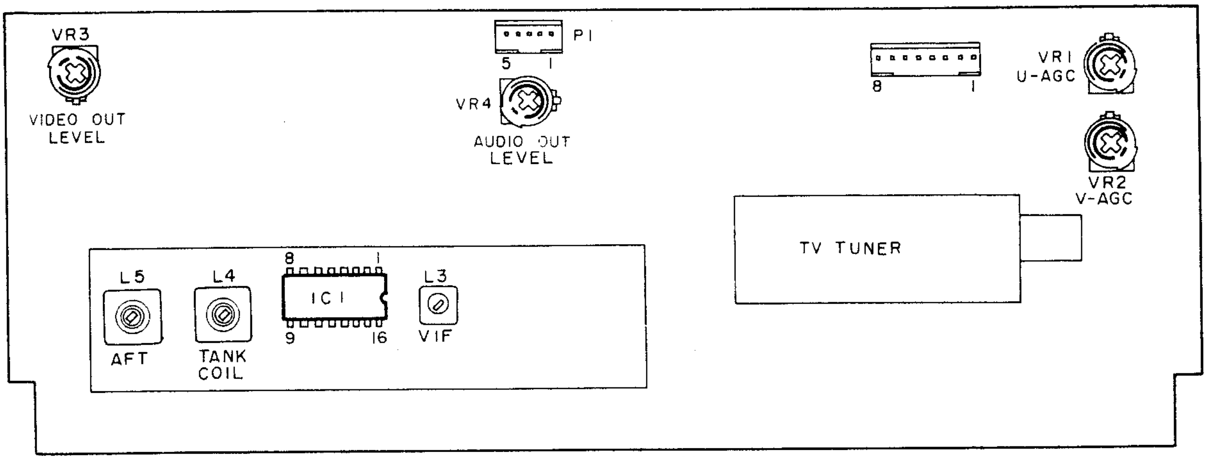
Step	Adjustment Item	Input	Mode	Test Point	Adjustment Parts	Result & Remarks
8	REC CURRENT	Color Bar from Color Bar Generator	SP REC	TP2-2 (Pre-Amp PCB)		1. Turn VR14 fully clockwise 
					VR15 (Chroma)	2. Adjust VR15 so that the chroma REC current waveform is 35 mVp-p as shown above. 
					VR14 (Y)	3. Adjust VR14 so that the Y REC current waveform is 135 mVp-p as shown above.
			LP REC	TP2-2		1. Turn VR2 fully clockwise. 
					VR10 (Chroma)	2. Adjust VR10 so that the chroma REC current waveform is 28 mVp-p as shown above. 
					VR2 (Y)	3. Adjust VR2 so that the Y REC current waveform is 110 mVp-p as shown above.

Step	Adjustment Item	Input	Mode	Test Point	Adjustment Parts	Result & Remarks
9	Head peak (Fo) Frequency and Channel Balance	RF Sweep Tape (AT-750802)	SP PB	TP1 (Pin 1) (Pre-Amp PCB) Test Terminal (Pin 2) (Servo PCB)	VC3 (CH-1 F) (Pre-Amp PCB) VC3 (CH-2 F) (Pre-Amp PCB) VR1 (CH Balance) (Pre-Amp PCB)	(CH-1)  1. Adjust VC3 (CH-1) so that the Peak Frequency is 4.8 MHz as shown above. (CH-2)  2. Adjust VC3 (CH-2) so that the Peak Frequency is 4.8 MHz as shown above. 3. Adjust VR1 so that the 4.8 MHz Peak Frequency levels between CH-1 and CH-2 are equal.
10	Peaking	Color Bar Test Tape (AT-750797)	SP PB	Monitor Screen	VR3 (Pre-Amp PCB)	Adjust VR3 so that the no over modulation and no smear on the Screen.
11	Carrier Balance	Reference Tape (AT-750795)	PB	TP17	VR8	 (Incorrect) ⬇  (Correct) Adjust VR8 so that the waveform is as shown above.

Step	Adjustment Item	Input	Mode	Test Point	Adjustment Parts	Result & Remarks
12	Local OSC	Color Bar Tape (AT-750797)	PB	TP15	VC2	1. Connect a frequency counter to TP15. 2. Adjust VC2 so that the frequency counter reads 4.433619 MHz ± 10 Hz.
13	Skew Jump Input level	Color Bar Tape (AT-750797)	PB	TP504	VR9	 Adjust VR9 so that the video signal level at TP504 is 0.7 ±0.1 Vp-p.
14	Skew Jump Y Demodulator Input level	Color Bar Test Tape (AT-750797)	PB	TP503	VR506	 Adjust VR506 so that the Y Demodulator Input waveform is 80 mV as shown above.
15	0.5H DL Y composition	Color Bar Test Tape	PB	TP501	VL501	 Adjust VL501 so that the Y-level is maximum.
16	Sample and Hold	Self Recorded Tape at LP mode	Cue (LP)	TP502	VR504	 Adjust VR504 so that the waveform is as shown above.

Step	Adjustment Item	Input	Mode	Test Point	Adjustment Parts	Result & Remarks
17	0.5H DL Y-level	Self Recorded Tape at LP mode	Review (LP)	TP2	VR501	 (Incorrect) ⬇  (Correct) Adjust VR1 so that the 0.5H delayed Y-level and through Y-level are same.
18	VIDEO Output level		PB	TP2	VR505	 Adjust VR505 so that the Video output Y level is 1.00 $^{+0.1}_{-0.20}$ Vp-p.
19	PB Chroma level	Color Bar Tape (AT-750797)	PB	TP2	VR11	 Adjust VR11 so that the cyan level is within 0.55 ±0.1 Vp-p.
20	Charactor Position	Color Bar from Color Bar Generator	EE	Monitor Screen	VR1 (Operation PCB)	 CLOCK 12:00 00 SUN 1/JAN/'83 SELECT TIME →A SHIFT →B IF OK, MEMORIZE →C 1. Display the character on the monitor screen. 2. Adjust VR1 so that the space A and B are 1.0 : 1.5.

8-6. DEMODULATOR ADJUSTMENT


VR3
VIDEO OUT LEVEL
P1
5 1
VR4
AUDIO OUT LEVEL
8 1
VR1
U-AGC
VR2
V-AGC
TV TUNER
L5
AFT
L4
TANK COIL
8 1
IC1
9 16
L3
VIF

(View from the Parts Side) **DEMODULATOR PCB 6B00159F**

Fig. 8-7 Demodulator PC Board Adjustment point

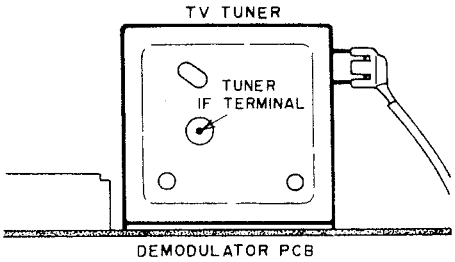

TV TUNER
TUNER IF TERMINAL
DEMODULATOR PCB

Fig. 8-8 IF Terminal

8-6-1. TANK COIL ADJUSTMENT (Refer to Fig. 8-7 to Fig. 8-9)

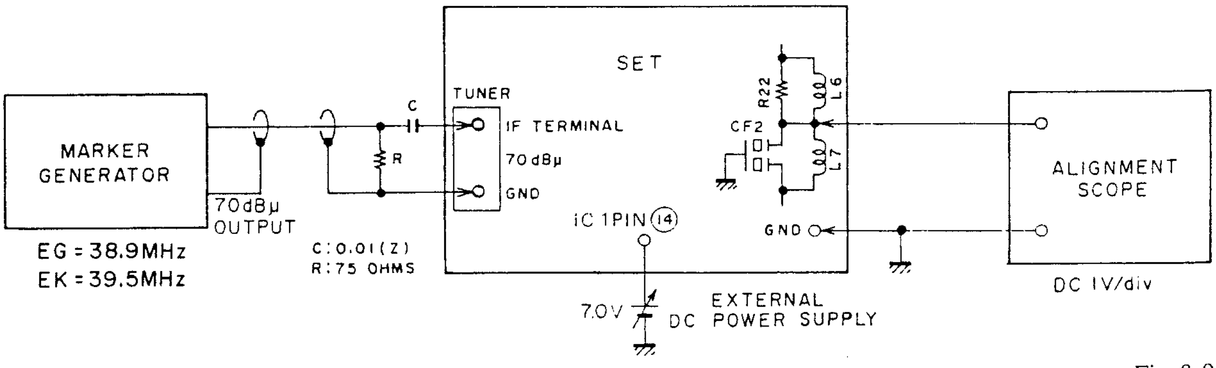

MARKER GENERATOR
70dBµ OUTPUT
EG = 38.9MHz
EK = 39.5MHz
C
R
C: 0.01 (Z)
R: 75 OHMS
SET
TUNER
IF TERMINAL
70dBµ
GND
R22
L6
CF2
L7
IC 1PIN ⑭
GND
7.0V
EXTERNAL DC POWER SUPPLY
ALIGNMENT SCOPE
DC 1V/div

Fig. 8-9

a) Supply 70dBµ IF frequency (EG = 38.9 MHz, EK = 39.5 MHz) to the IF terminal (Refer to Fig. 8-9).
b) Connect the alignment scope as shown in Fig. 8-9.
c) Supply DC7.0V to Pin ⑭ of IC1, from the External DC power supply.
d) Adjust L4 so that the DC voltage appearing on the alignment scope is minimum.

Note: 0 dBµ = 1 µV

* If only the TANK COIL (L4) was replaced, this adjustment can be accomplished as follows.

a) Receive a video signal (color bar, etc.) and observe the video output signal.
b) Turn the TANK COIL (L4) counter-clockwise from Lower end (core moves upwards) so that the level of the burst signal becomes minimum as shown in Fig. 8-10.

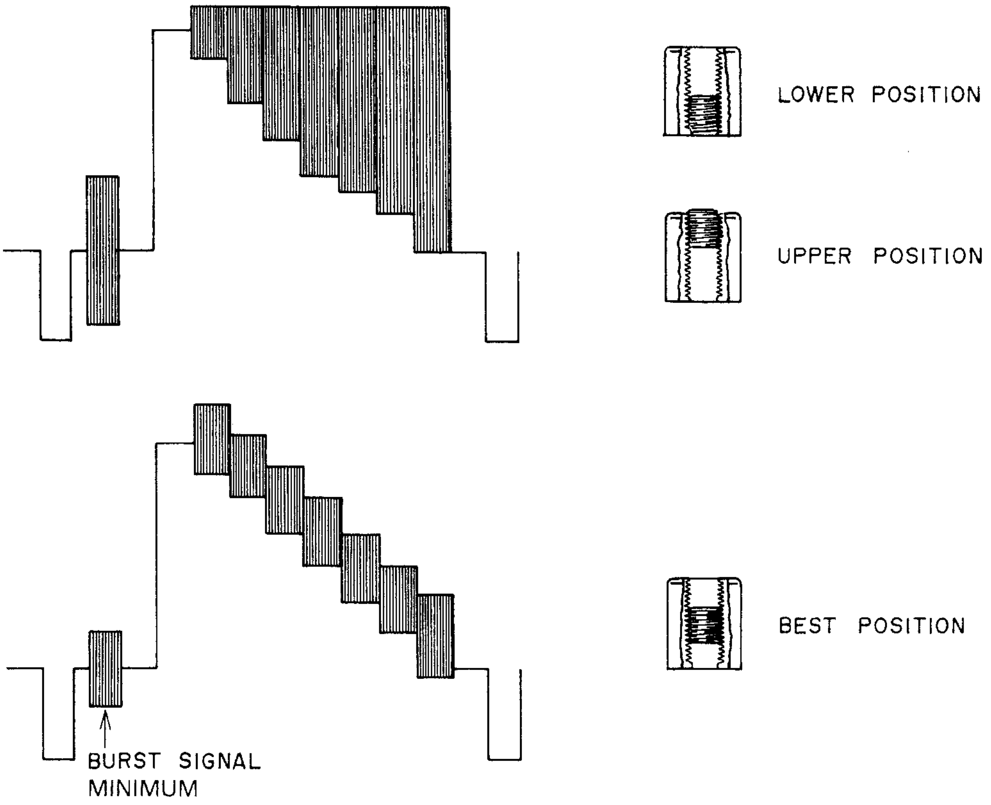

LOWER POSITION
UPPER POSITION
BEST POSITION
BURST SIGNAL
MINIMUM

Fig. 8-10

8-6-2. AFT ADJUSTMENT (Refer to Figs. 8-11, 8-12)

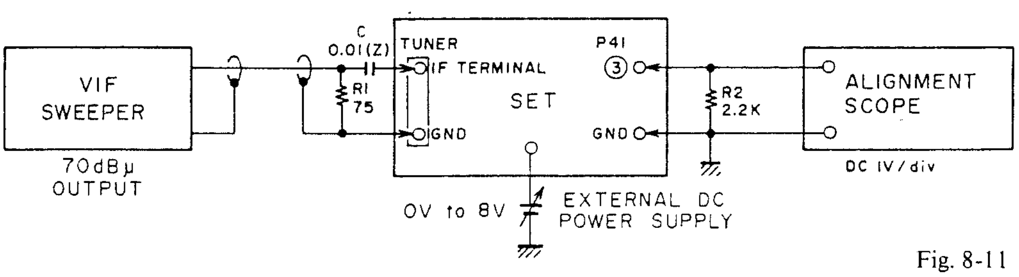

VIF
SWEEPER
70dBμ
OUTPUT
C
0.01(Z)
R1
75
TUNER
IF TERMINAL
GND
SET
P41
③
GND
0V to 8V
EXTERNAL DC
POWER SUPPLY
R2
2.2K
ALIGNMENT
SCOPE
DC 1V/div

Fig. 8-11

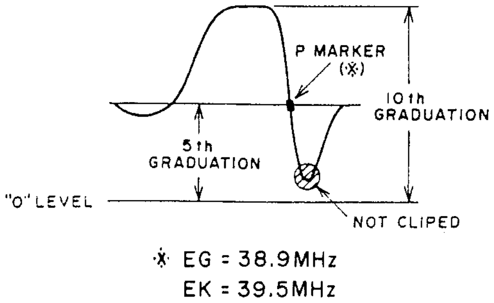

P MARKER
(※)
10th
GRADUATION
5th
GRADUATION
"0" LEVEL
NOT CLIPED
※ EG = 38.9MHz
EK = 39.5MHz

Fig. 8-12

a) Connect VIF sweeper output 70 dBμ to the IF terminal

b) Connect an alignment scope to the AFT terminal (Pin ③ of P41).

c) Give an optional size to the waveform with the External DC power supply (not clipped as shown in Fig. 8-12).

e) Adjust L5 so that the marker (EG = 38.9 MHz, EK = 39.5 MHz) is positioned 5th graduation of the alignment scope (Fig. 8-12).

8-6-3. VIF ADJUSTMENT (Refer to Figs. 8-13, 8-14)

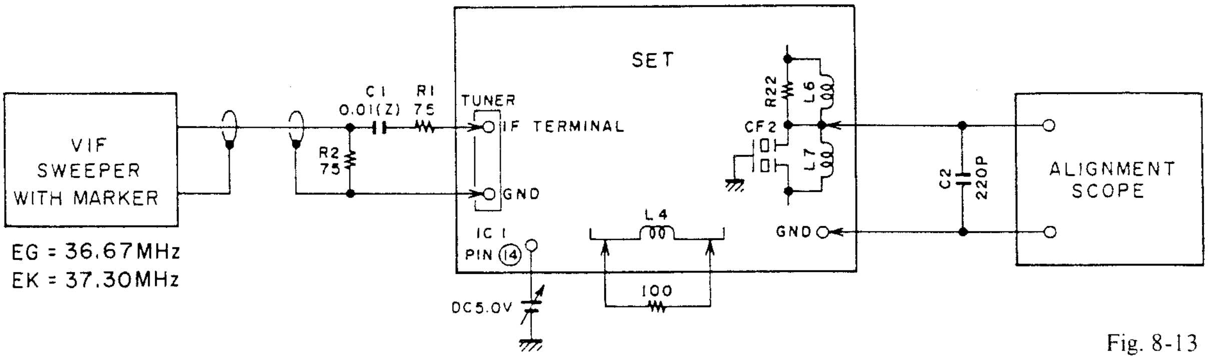


Fig. 8-13

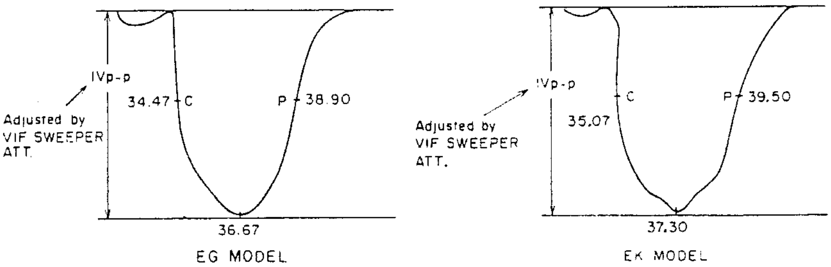


Fig. 8-14

a) Supply DC5.0V to IC1 pin ⑭ from the External DC power supply.
b) Adjust the output Attenuator of the VIF Sweeper to obtain 1.0V p-p on the Alignment Scope.
c) Connect an alignment scope as shown Fig. 8-11.
d) Connect dummy resistors of 100 ohms with both ends of the tank coil (L4).
e) Adjust L3 so that the marker (EG = 38.9 MHz, EK = 39.5 MHz) and waveform on the Alignment Scope as shown in Fig. 8-12.

8-6-4. IF AGC ADJUSTMENT

a) Disconnect all External Connection for previous Adjustment.
b) Tune and Receive the RF signal (Caution: Confirm the RF OUT is EV, EV-M = VHF 12 CH Color Bar, EA = VHF 6 CH Color Bar, ES = UHF 30 CH Color Bar.)
c) Connect an oscilloscope to video output Pin ⑤ of P42 and adjust VR3, so that the video output level is 0.9 Vp-p.

8-6-5. RF AGC ADJUSTMENT

V-AGC

a) Tune and receive VHF CH. 12 70 dBμ from the Pattern Generator.
b) Connect an oscilloscope to the Video Output Pin ⑤of P42.
c) Adjust VR2 to obtain the condition from the noisy Video Output Signal to the least noise Video Output Signal (Refer to Fig. 8-15).

U-AGC

a) Tune and Receive UHF CH. 40.
b) Adjust VR1 in the same way as V-AGC Adjustment.

8-6-6. AUDIO OUTPUT ADJUSTMENT

a) Apply DC 6.0V to Pin ② of P41.
b) Connect an AC voltmeter and a distortion meter to Pin ② of P42.
c) Add the following RF signals to ANT IN.
EG, modes VHF 12 CH (Color Bar) } 58 dBμ
EK, model UHF 30 CH (Philips) } OUTPUT
d) Adjust with VR4 so that the reading of the AC voltmeter is −6 dBm.

IX. DC RESISTANCE OF VARIOUS COILS

PARTS	NAME	DC RESISTANCE	
A/C Head	HV225207SCD	Audio Control Erase	270 ohms ± 10% 820 ohms ± 10% 1.98 ohms ± 10%
FE Head	HV113201V		3 ohms ± 10%
P.G Head	TP306		580 ohms ± 10%
Capstan Motor (M901)	DMF4923	Motor F.G	5.82 ohms ± 10% 660 ohms ± 10%
Loading Motor (M902)	MXN-12AE18A		30 ~ 50 ohms ± 20%
Reel Motor (M903)	MJB5B51		23.5 ohms ± 10%
Eject Motor (M904)	MMN-5C2RP		20 ohms ± 10%
Plunger Solenoide	1240 PLT (15V)	RED ↔ ORG RED ↔ BLK	30 ohms ± 10% 200 ohms ± 10%

X. PC BOARD TITLES AND IDENTIFICATION NUMBERS

PC BOARD TITLE	PC BOARD NUMBER
VIDEO PC BOARD	V1015A501A
POWER SUPPLY & SYSTEM CONTROL PC BOARD	V1039A5110
SERVO PC BOARD	V1015B5040
LINEAR AUDIO PC BOARD	V1037B5020
HIFI AUDIO PC BOARD	V1039A5010
MECHA DRIVE PC BOARD	V1015A502A
DEMODULATOR PC BOARD	6B00159F
SLIDE SW (2) PC BOARD	V1039D5120
PHONE JACK PC BOARD	V1039D5050
OPERATION PC BOARD	V1015A501A
LED (3) PC BOARD	V1015A521C
DRIVE PC BOARD	M3202C5010
POWER FILTER PC BOARD	V1017D5060
C M DRIVE PC BOARD	V1015A501B
PRE AMP PC BOARD	V1015A5070
SENSOR (L) PC BOARD	V1015D5200
RELAY PC BOARD	V1039D5070
A V PC BOARD	V1015D5150
R S SW PC BOARD	V1017A518D
L SW (A) PC BOARD	V1017A518C
L SW (B) PC BOARD	V1017A518B
BAR METER PC BOARD	

RC-T12 (REMOTE CONTROL TRANSMITTER)

PC BOARD TITLE	PC BOARD NUMBER
TRANSMITTER PC BOARD	

SECTION 3

PARTS LIST

TABLE OF CONTENTS

RECOMMENDED SPARE PARTS LEST 73
1. HEAD DRUM BLOCK 74
2. MECHA FRAME BLOCK (1) 75
3. MECHA FRAME BLOCK (2) 76
4. EJECTOR ASSY (2) 77
5. VIDEO (PAL) PC BOARD BLOCK 78
6. HIFI AUDIO PC BOARD BLOCK 79
7. LINEAR AUDIO PC BOARD BLOCK 79
8. SERVO PC BOARD BLOCK 80
9. PRE AMP PC BOARD BLCOK 80
10. POWER SUPPLY AND SYSTEM CONTROL PC BOARD BLOCK 81
11. MECHA DRIVE PC BOARD BLOCK 81
12. OPERATION PC BOARD BLOCK 81
13. DEMODULATOR PC BOARD BLOCK 82
14. BAR METER PC BOARD BLOCK 82
15. AV PC BOARD BLOCK 82
16. PHONE JACK BLOCK 82
17. POWER FILTER PC BOARD BLOCK 82
18. POWER AND RF BLOCK 83
19. FINAL ASSEMBLY BLOCK 83

REMOTE CONTROL TRANSMITTER RC-T12 82

INDEX 84

ATTENTION

1. When placing an order for parts, be sure to list the parts no. model no., and description. There are instances in which if any of this information is omitted, parts cannot be shipped or the wrong parts will be delivered.
2. Please be careful not to make a mistake in the parts no. If the parts no. is in error, a part different from the one ordered may be delivered.
3. Because parts number and parts unit supply in the Preliminary Parts List may be partially changed, please use this parts list for all future reference.

HOW TO USE THIS PARTS LIST

1. This Parts List shows the parts that are considered necessary for repairs. Other parts, such as resistors and capacitors, are shown in the "Common List for Service Parts". Select and order such parts from the "Common List for Service Parts".
2. The Recommended Spare Parts shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not be supplied in principle.
4. How to read list

a) Mechanism Block

2. HEAD BASE BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
2-1x	BH-T2023A320A	HEAD BASE BLOCK GX-F66R
2-2	HP-H2206A010A	HEAD R/P PR4-8FU C
2-3	ZS-477876	PAN20x03STL CMT
2-4	ZS-536488	BID20x08STL CMT
2-5	ZG-402895	CS ANGLE ADJUST SPRING

SP (Service Parts) Classification

A small "x" indicates the inability to show that particular part in the Photo or Illustration.

This number corresponds with the individual parts index number in that figure

This number corresponds with the Figure Number

b) P.C Board Block

6. SYS. CON. P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
6-1	BA-T2034A070A	PC SYS CON BLK GX-F44R
6-IC1	EI-324536	IC HD14049BP
6-IC2	EI-336801	IC MB8841-564M
6-IC3	EI-331661	IC SN7405N
6-IC4	EI-336725	IC M54527P
6-TR1to4	ET-200985	TR 2SC2603 F,G
6-TR5to28	ET-554657	TR 2SA733A P,Q
6-D1	ED-318292	D SILICON H 1S2473T-77 T26
6-D2to4	ED-308952	D GERMA V 1K34A-LR F07
6-D5to10	ED-318292	D SILICON H 1S2473T-77 T26
6-X1	EI-318384	OSC X'TAL NC-18C 3.579545MHZ

SP (Service Parts) Classification

This reference numbers corresponds with symbol numbers of Schematic Diagrams.

5. Both the kind of part and installation position can be determined by the Parts Number. To determine where a parts number is listed, utilize Parts Index at end of Parts List. It is necessary first of all to find the Parts Number. This can be accomplished by using the Reference Number listed at right of parts number in the Parts Index.

WARNING

⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT

⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

RECOMMENDED SPARE PARTS LIST

Because, if the parts listed below are on hand, almost any repair can be accomplished, we suggest that you stock these Recommended Spare Parts Items.

REF. NO.		PARTS NO.	DESCRIPTION
1		AV-349310	BATTERY PACK 4.8V 60MA-415
2		BA-M3202A020A	PC DRIVE (2) BLK BLM-410
3		BM-749896	LOADING MOTOR SUB ASSY (3)
4		BM-352233	MOTOR CAPSTAN DMF-4923
5		BM-348088	MOTOR MMN-5C2RP
6		BM-345265	MOTOR REEL MJB5B51
7		BM-B344824	ROTOR PART
8		BT-354503	⚠ TRANS POWER VS-12-1 (EG)
9		BT-354518	⚠ TRANS POWER VS-12-2 (EK)
10	N	BV-V9009A010A	HEAD DRUM BLK VS-12
11		BV-V1039A110A	LOWER DRUM BLK VS-12EG
12		BV-353839	RF CONVERTOR MDL6-023 (EG)
13		BV-353840	RF CONVERTOR MIL6-023 (EK)
14		BV-V1039A120A	UPPER DRUM BLK VS-12EG
15		EC-346765	C S-FIX H ECR-HA010A11 2.8-10
16		EC-346764	C S-FIX H ECR-HA020D11 4-20
17		EC-348972	C S-FIX V ECR-HB050G11
18		ED-350748	⚠ D SILICON DBA60C-K15
19		ED-347618	⚠ D SILICON DS135E-FB6 100/1.0A
20		ED-322238	⚠ D SILICON 1B4B41 100/1.0A
21		ED-346603	⚠ D ZENER H HZ6 A1
22		ED-347776	D LED BG5608S GRN
23		ED-347777	D LED BR5628S RED
24		ED-249377	D LED GL3AR1 RED
25		ED-283138	D LED GL3PG1 GRN
26		ED-352722	D LED DL-101VR RED
27		ED-352723	D LED LD-603MG GRN
28		ED-348462	D LED SL2221T GRN
29		ED-351202	D PHOTO PN313 AK
30		ED-301911	D SILICON H DS448
31		ED-344280	D SILICON H GMA-01-FY2 F05
32		ED-523427	D SILICON H 1SS16
33		ED-604541	D SILICON H 1S2076
34		ED-624903	D SILICON H 1S2473
35		ED-347767	D SILICON V MC911 DOUBLE
36		ED-347768	D SILICON V MC921 DOUBLE
37		ED-348205	D SILICON V MC931 DOUBLE
38	N	ED-560913	D SILICON V 1S2473VE
39		ED-742520	D VARACTOR 1SV70-09
40		ED-347899	D ZENER H HZ20CP
41		ED-346595	D ZENER H HZ3 C2
42		ED-346622	D ZENER H HZ30 1
43		ED-346604	D ZENER H HZ7 B2
44		ED-346609	D ZENER H HZ9 C1
45		ED-349816	D ZENER H MA1056-H
46		EE-345115	TV TUNER CDE1-A04 (EG)
47		EE-345116	TV TUNER CBE1-013 (EK)
48		EF-347968	⚠ FUSE ICP-F10 150V 0.4A
49		EF-346880	⚠ FUSE ICP-F15 150V 0.6A
50		EF-668474	⚠ FUSE SEMKO T 250V 0.40A
51		EF-601942	⚠ FUSE SEMKO T 250V 0.63A
52		EF-623103	⚠ FUSE SEMKO T 250V 1.00A
53		EF-601301	⚠ FUSE SEMKO T 250V 2.00A
54		EF-690996	⚠ FUSE SEMKO T 250V 4.00A
55		EH-322365	DL EFD-EN645A11E
56		EH-348223	DL MS-26H H-2K
57		EH-353396	DL EFD-BR124A13D
58		EH-348225	DL MS-19 (L-11)
59		EH-348224	DL MS-26 (H-3K)
60		EH-345114	FILTER BP LJ20BP 4.43MHz × 0.3 4.43MC
61		EH-352718	FILTER BP LJ25BP1.4M01-32
62		EH-352719	FILTER BP LJ25BP1.8M01-32
63		EH-705499	FILTER CE SFE 5.5MHz
64		EH-705500	FILTER CE SFE 6MHz
65		EH-749840	FILTER CE TPS 6.0MD.
66		EH-749841	FILTER CE 5.5MC19A
67		EH-749842	FILTER CE 6.0MC19A
68		EH-324339	FILTER LC AP LCB-56
69		EH-324375	FILTER LC BP LCB-57 4.43MHz
70		EH-325807	FILTER LC BP LCB-61 5.06MHz
71		EH-330465	FILTER LC DST310-55B271M
72		EH-324305	FILTER LC HP LCB-53
73		EH-324398	FILTER LC LP LCB-58
74		EH-345113	FILTER LC LP LJ25LP3.4M01
75		EH-348142	FILTER LC LP LJ25LP3.4M02
76		EH-352720	FILTER LP LJ15LP0.1M01-32
77		EH-348368	FILTER LP LPF1.50
78		EH-348367	FILTER LP LPF500
79		EH-742662	FILTER SAW SAF38.9MZ51Z
80		EH-742663	FILTER SAW SAF39.5MZ51Z
81		EI-353281	⚠ IC SI3052V
82		EI-354502	⚠ IC STR9012
83		EI-347758	⚠ IC TA78012AP
84		EI-337530	⚠ IC UPC574J
85		EI-336987	HALL ELEMENT DHD-H150
86		EI-341516	IC AN6041
87		EI-307616	IC AN608P
88		EI-348974	IC AN6209
89		EI-347764	IC AN6307
90		EI-324204	IC AN6310
91		EI-353690	IC AN6326N
92		EI-321604	IC AN6341N
93		EI-324203	IC AN6342N
94		EI-326044	IC AN6350
95		EI-324151	IC BA6360
96		EI-324160	IC AN6362
97		EI-324182	IC AN6371
98		EI-352715	IC AN6391S
99		EI-337625	IC BA236
100		EI-337964	IC BA401
101		EI-330352	IC BA6109
102		EI-353695	IC BA634
103		EI-348222	IC BA7001
104		EI-348220	IC BA7022
105	N	EI-354399	IC BU4001B
106		EI-354640	IC BU4052B
107	N	EI-354401	IC BU4066B
108		EI-347733	IC DN6838
109		EI-321605	IC DN819
110		EI-322309	IC HA11703
111		EI-352714	IC HA11752
112		EI-352716	IC HA120066MP
113		EI-354780	IC HA17358
114	N	EI-328593	IC HD14053BP
115		EI-347781	IC LA6393D
116		EI-347779	IC LA6393S
117		EI-345759	IC LC7530
118		EI-347766	IC MBL8243M
119		EI-349143	IC MB88202-105G
120		EI-337519	IC MB88301-A
121		EI-347773	IC MB88303M
122		EI-349121	IC MB88401-233K
123		EI-349126	IC MB88501-147M
124	N	EI-698703	IC MC14013BCP
125	N	EI-310038	IC MC14025BCP
126	N	EI-200572	IC MC14053BCP
127	N	EI-330392	IC MC14070BCP
128		EI-353698	IC M50760-365P
129		EI-348897	IC M51014L
130		EI-353227	IC M5216L
131		EI-337228	IC M5218LO
132		EI-347769	IC M54514AP
133		EI-337503	IC M54532P
134		EI-347760	IC M54534P
135		EI-749829	IC M54573L
136		EI-348958	IC M58981P-45
137		EI-348229	IC NE555P
138		EI-344921	IC TA7245BP
139		EI-705494	IC TA7607AP
140		EI-337529	⚠ IC TA78L005AP
141		EI-355743	IC TA78009AP
142		EI-300834	IC TC4520BP
143		EI-353696	IC TK15021
144		EI-318270	IC UA556PC
145		EI-749828	IC UPC1391H
146		EI-337360	IC UPC4082C
147		EI-352717	IC.LF1803
148		EI-349372	OSC CE CSA4.00MG 4MHz
149		EI-330256	OSC CE F85-006 4MHz
150		EI-348543	OSC X'TAL HC-18/U 10.240000MHz
151		EI-347434	OSC X'TAL HC-18/U 4.194304MHz
152		EI-309878	OSC X'TAL 4.433619MHz
153		EI-322347	OSC X'TAL 4.435571MHz
154		EL-332451	PL CORD 12.0V 60MA
155		EM-352692	IND LE LT-1127
156		EO-347791	⚠ COIL OSC 1 0512033
157		EO-348206	COIL VARI 1 YBTKANS-28929Z 2.20μH
158		EP-345264	SOLENOID W/TAP 1240PLT 15V
159		EQ-348929	RELAY SIG G5A232P 2TR 12V
160		ER-701259	⚠ R FUSE SB 1/4W 100J
161		ER-742497	⚠ R FUSE 1/4W 220J
162		ES-332384	SW MICRO SS-5-F
163		ES-347911	⚠ SW PUSH ESB-8213V 01-1
164		ES-309312	⚠ SW SLIDE 00220481 02-2
165		ES-348089	SW LEAF MSW-1429C 01-1 NO
166		ES-352333	SW LEAF MSW-1550C
167		ES-318284	SW LEVER SCL101R23A 1-01-02N
168		ES-347790	SW SLIDE 00120323 1-01-02
169		ES-354896	SW SLIDE 00230107 02-3 N
170		ES-349641	SW SLIDE 00230890 (9.3) 2-02-03
171		ES-352694	SW SLIDE 00240944
172		ES-347755	SW TACT EVQ-QSE05T
173		ET-337194	⚠ TR 2SB761 Q,R
174		ET-318308	PHOTO SENSOR PN202S
175		ET-354415	TR DTA144ES
176		ET-711091	TR DTC124F
177		ET-354414	TR DTC144ES
178		ET 353734	TR FET 2SJ103 GR,BL
179		ET-348898	TR FET 2SJ40 C,D,E
180		ET-308472	TR 2SA115 E,F,G
181		ET-347738	TR 2SA1282A E,F
182		ET-346806	TR 2SA1309 Q,R,S
183		ET-337569	TR 2SA675A E,F,H
184		ET-336845	TR 2SB641 Q,R,S,T
185		ET-348931	TR 2SB774 R,S,T
186		ET-338424	TR 2SB941 Q,R,S
187		ET-522270	TR 2SC1210 D
188		ET-350724	TR 2SC1214 B,C,D
189		ET-306719	TR 2SC2236 O,Y
190		ET-308141	TR 2SC2603 G
191		ET-351858	TR 2SC3311 Q,R,S
192		ET-349081	TR 2SC3373 S,T
193		ET-349592	TR 2SC3400
194		ET-742646	TR 2SC388A
195		ET-344999	TR 2SD1010 R,S,T
196	N	ET-328868	TR 2SD1012-V G,H
197		ET-338324	TR 2SD1012-V H
198		ET-348948	TR 2SD1273 P,Q
199		ET-208012	TR 2SD571 K
200		ET-352406	TR 2SD661 R,S,T,U
201		ET-200418	TR 2SD661 S,T,U
202		ET-200402	TR 2SD958 S,T,U
203		EV-332264	R S-FIX H EVM38G 3P 0.30W 503
204		EV-200403	R S-FIX H EVN38 3P 102
205		EV-200461	R S-FIX H EVN38 3P 103
206		EV-318605	R S-FIX H EVN38 3P 203
207		EV-200462	R S-FIX H EVN38 3P 503
208		EV-307626	R S-FIX H H0621A 3P 0.30W 103
209		EV-336769	R S-FIX H H0621A 3P 0.30W 473
210		EV-336767	R S-FIX H H0621A 3P 0.30W 683
211		EV-352255	R S-FIX H H0621A 3P 332
212		EV-332404	R S-FIX H H0651A 3P 0.05W 101
213		EV-307621	R S-FIX H H0651A 3P 0.05W 103
214		EV-330212	R S-FIX H H0651A 3P 0.05W 152
215		EV-332320	R S-FIX H H0651A 3P 0.05W 332
216	N	EV-307706	R S-FIX H H0651A 3P 0.05W 471
217		EV-336770	R S-FIX H H0651A 0.05W 473
218		EV-349156	R S-FIX H H0651A 3P 0.05W 681
219		EV-336852	R S-FIX H KVSF807U 3P 102
220		EV-336853	R S-FIX H KVSF807U 3P 103
221		EV-336854	R S-FIX H KVSF807U 3P 104
222		EV-336850	R S-FIX H KVSF807U 3P 202
223		EV-336851	R S-FIX H KVSF807U 3P 501
224		EV-336847	R S-FIX H KVSF807U 3P 502
225	N	EV-341225	R S-FIX H KVSF807U 3P 503
226		EV-341226	R S-FIX H KVSF807U 3P 204
227		EV-356296	R S-FIX H TM64K3 3P 0.3W 154
228		EV-337957	R S-FIX H TM64K3 3P 0.30W 102
229		EV-337950	R S-FIX H TM64K3 3P 0.30W 683
230		EV-356298	R S-FIX H TM64K3 3P 0.30W 684
231		EV-702569	R S-FIX TT24R 103B
232		EV-702567	R S-FIX TT24R 202
233		EV-348413	R S-FIX V RVA0911 T3P 202
234		EV-523708	R S-FIX V V8K1-1 3P 501
235		EV-749777	R S-FIX 502
236		EX-351674	POSISTER PTH499H
237		EX-330533	POSISTER PTH61G04BD3R3N
238		EY-348960	BUZZER PKM24-4A0
239		HC-347811	HEAD CTL HV225207SCD
240		HC-347163	HEAD PU TP306
241	N	HE-325273	HEAD E HV113201 V
242		MB-345018	BELT CAPSTAN
243		MB-780029	BELT LOADING
244		MI-327773	IDLER ASSY
245		MP-604531	ROLLER PINCH VS-2 (NEW)
246	N	BV-V1039A080A	HEAD DRUM BLK VS-12EG

NOTE: N: New Parts

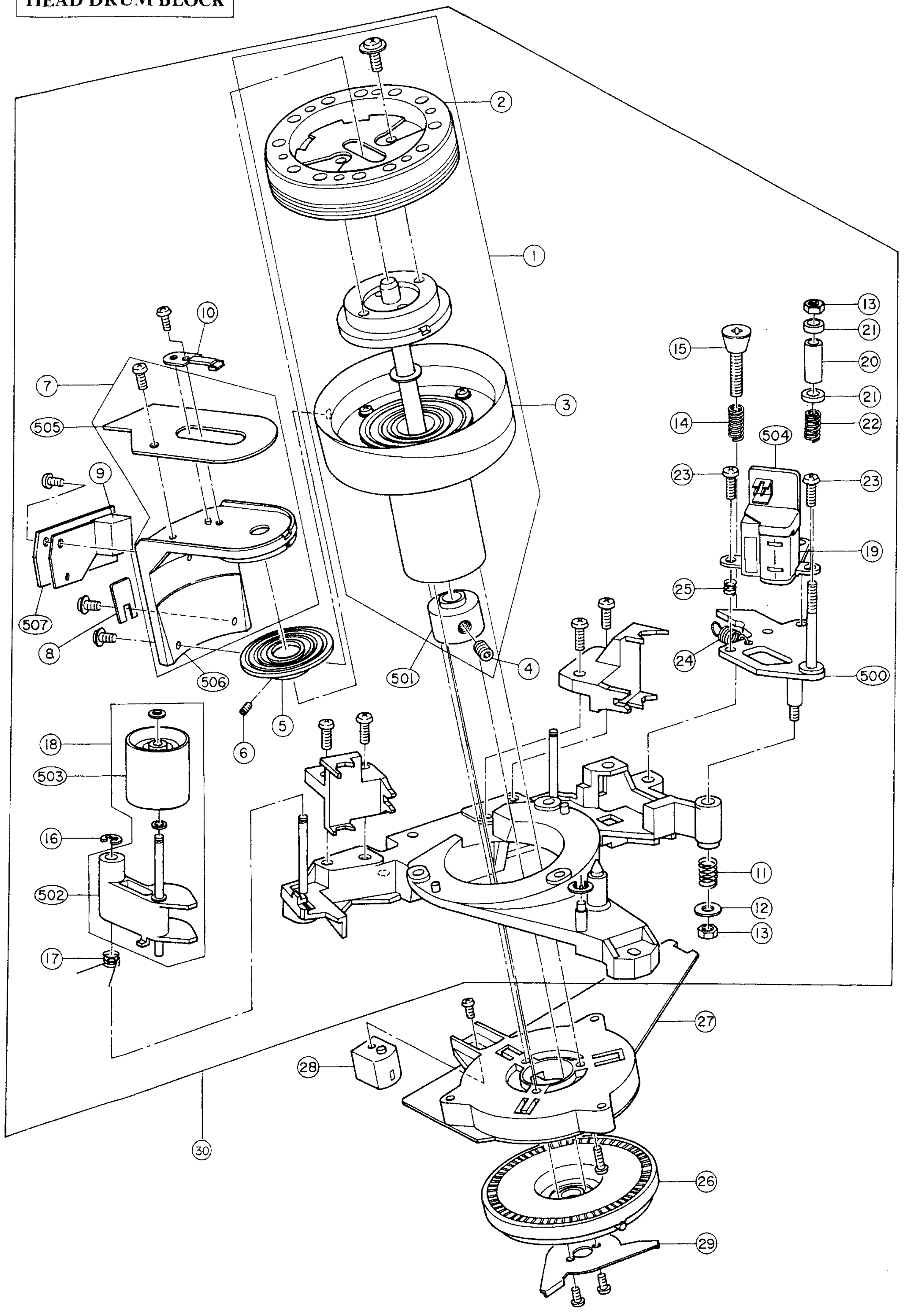
1. HEAD DRUM BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
	HEAD DRUM BLOCK	
1-1	BV-V9009A010A	HEAD DRUM SUB BLK VS-12EG
	UPPER DURM BLOCK	
1-2	BV-V1039A120A	UPPER DURM BLK VS-12EG
	LOWER DURM BLOCK	
1-3	BV-V1039A110A	LOWER DURM BLK VS-12EG
1-4	ZS-318206	6SET40×040SCM PKR WP
	HEAD DURM BLOCK	
1-5	VT-B353093	ROTARY COIL PART
1-6	ZS-356815	6SET30×060SCM PKR HP
1-7	VT-V1039A240A	STATER COIL BLK VS-12EG
1-8	EX-351674	POSISTER PTH499H
1-9	EQ-348929	RELAY SIG G5A-232P 2TR 12V
1-10	VT-353098	DRUM EARTH BRUSH ASSY
	DURM BASE BLOCK	
1-11	ZG-331178	SP PUSH PRESS ACH
1-12	ZW-550642	PW31×080×050STL CMT
1-13	ZW-516993	N30STL CMT 1
1-14	ZG-332979	SP PUSH CTL (B)
1-15	ZS-354085	SCREW ADJUST (2)
1-16	ZW-357164	RING E230SUP CMT
1-17	ZG-327740	SP TORSION LZ
	ROLLER IMPEDANCE BLOCK	
1-18	BL-V1017A140A	ROLLER IMPEDANCE BLK VS-4EG
	A/C H BLOCK	
1-19	HC-347811	HEAD CTL HV225207SCD
1-20	HZ-343076	GUIDE TAPE (C)
1-21	HZ-342726	GUIDE TAPE (B)
1-22	ZG-328225	SP C-3.5/0.8-10.0G C-102G
1-23	ZS-380046	PAN30×10STL CMT
1-24	ZG-327757	SP PULL ACH SET
1-25	ZG-313257	SP C-3.5/0.8-8.0 C-101
	MOTOR BLM-410	
1-26	BM-B344824	ROTOR PART
	PC DRIVE BLOCK	
1-27	BA-M3202A020A	PC DRIVE (2) BLK BLM-410
1-28	HC-347163	HEAD PU TP306
1-IC1	EI-344921	IC TA7245BP
1-R12	ER-333586	R CB H S15 FS RDS 1/2W 3R3J
1-29	MZ-351099	FAN
1-30	BV-V1039A080A	HEAD DRUM BLK VS-12EG

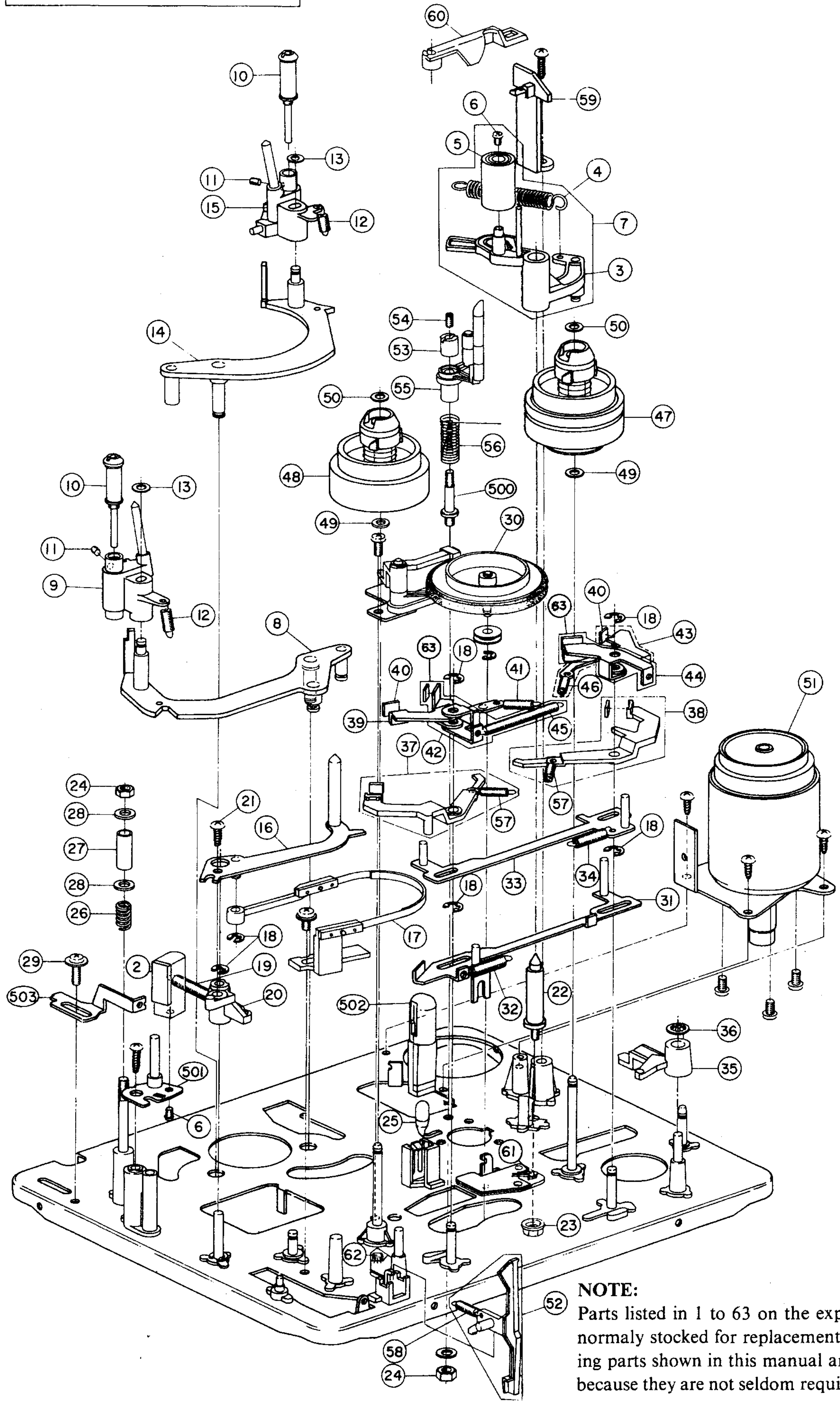
NOTE:

Parts listed in 1 to 30 on the exploded view and list are normaly stocked for replacement purpose. The remaining parts shown in this manual are not normaly stocked, because they are not seldom required for routine service.

HEAD DRUM BLOCK



MECHA FRAME BLOCK (1)



NOTE:
Parts listed in 1 to 63 on the exploded view and list are normaly stocked for replacement purpose. The remaining parts shown in this manual are not normaly stocked, because they are not seldom required for routine service.

2. MECHA FRAME BLOCK (1)

REF. NO.	PARTS NO.	DESCRIPTION
2-1	BB-V1015A200A	MECHA FRAME ASSY VS-8FG
	HOLDER ERASE HEAD BLOCK	
2-2	HE-325273	HEAD E HV113201 V
	LEVER PINCH ROLLER BLOCK	
2-3	BL-B326296	LEVER PINCH ROLLER PART
2-4	ZG-342091	SP PULL PINCH ROLLER
2-5	MP-604531	ROLLER PINCH VS-2(NEW)
2-6	ZS-477876	PAN20×03STL CMT
2-7	BV-V1009A320A	LEVER PINCH ROLLER BLK (VS-2 NEW)
	LEVER LOADING (L) BLOCK	
2-8	BL-B348989	LEVER LOADING (L) PART
2-9	VT-B319445	LOADING LEADER (L) PART
2-10	VT-317947	VERTICAL POLE PART (P)
2-11	ZS-341471	6SET23×030SCM PKR HP
2-12	ZG-318043	SP LEADER
2-13	ZW-344643	PW26×070×025PSL
	LEVER LOADING (R) BLOCK	
2-14	BL-B348098	LEVER LOADING(R) PART
2-15	VT-B319446	LOADING LEADER (R) PART
	TENSION ARM BLOCK	
2-16	BL-B326468	LEVER TENSION PART
2-17	VT-328134	TENSION BAND ASSY
2-18	ZW-357164	RING E230SUP CMT
2-19	ZG-328664	SP T2-4.0/0.4-35.5 T2-118
2-20	VT-326470	HOLDER TENSION LEVER
2-21	ZS-310984	PT BR 30×08STL CMT
	MECHA FRAME BLOCK	
2-22	MH-321688	PROP 9 PINCH ROLLER LEVER
2-23	ZS-609434	N FRANGE 30STL CMT
2-24	ZW-516993	N30STL CMT 1
2-25	EL-332451	PL CORD 12.0V 60MA
2-26	ZG-349805	SP PUSH GUIDE TAPE
2-27	HZ-343076	GUIDE TAPE (C)
2-28	HZ-342726	GUIDE TAPE (B)
2-29	ZS-328607	TRIPLE SCREW PAN30×05
2-30	MI-327773	IDLER ASSY
2-31	BL-B322090	LEVER BRAKE SLIDE (B) PART
2-32	ZG-313045	SP T1-5.0/0.55-25.0 T1-158
2-33	BL-B322027	LEVER BRAKE SLIDE (A) PART
2-34	ZG-332463	SP T2-3.2/0.29-20 T2-064
2-35	ML-330640	LEVER BRAKE RELEASER
2-36	ZW-653163	RING CS280STL PKR
2-37	BL-V1004A090A	LEVER FF BRAKE BLK VS-5EG
2-38	BL-V1004A100A	LEVER REW BRAKE BLK VS-5EG
2-39	VT-B322286	LEVER S LOADING BRAKE PART
2-40	VT-322159	SHEET BRAKE (A)
2-41	ZG-318204	SP T2-3.2/0.29-16 T2-062
2-42	BL-V1004A120A	LEVER BRAKE (A) BLK VS-5EG
2-43	BL-V1004A130A	LEVER TU LOADING BRAKE BLK VS-5EG
2-44	BL-V1004A140A	LEVER BRAKE (B) BLK VS-5EG
2-45	ZG-344132	SP PULL BRAKE
2-46	ZG-312945	SP T1-3.2/0.29-14.0 T1-061
2-47	BR-347731	TU REEL TABLE BLK
2-48	BR-347732	SUPPLY REEL TABLE BLK
2-49	ZW-324417	PW31×060×050PSL
2-50	ZW-344643	PW26×070×025PSL
2-51	BM-352233	MOTOR CAPSTAN DMF-4923
2-52	BL-V1004A170B	LEVER REC SAFETY BLK VS-4EG
2-53	ZS-326246	NUT ADJUST
2-54	ZS-328608	6SET26×030SCM PKR FP
2-55	BL-B326220	LEVER REVIEW PART
2-56	ZG-326247	SP TORSION REVIEW
2-57	ZG-328659	SP T2-3.2/0.2-16 T2-043
2-58	ZG-312997	SP T1-4.0/0.4-16.0 T1-111
2-59	VT-345031	HOLDER OPENER
2-60	VT-326477	GUIDE CAP
	HALL IC BLOCK	
2-61	EI-347733	IC DN6838 (IC1)
2-62	EI-347733	IC DN6838 (IC2)
2-63	VT-322203	SHEET BRAKE (B)

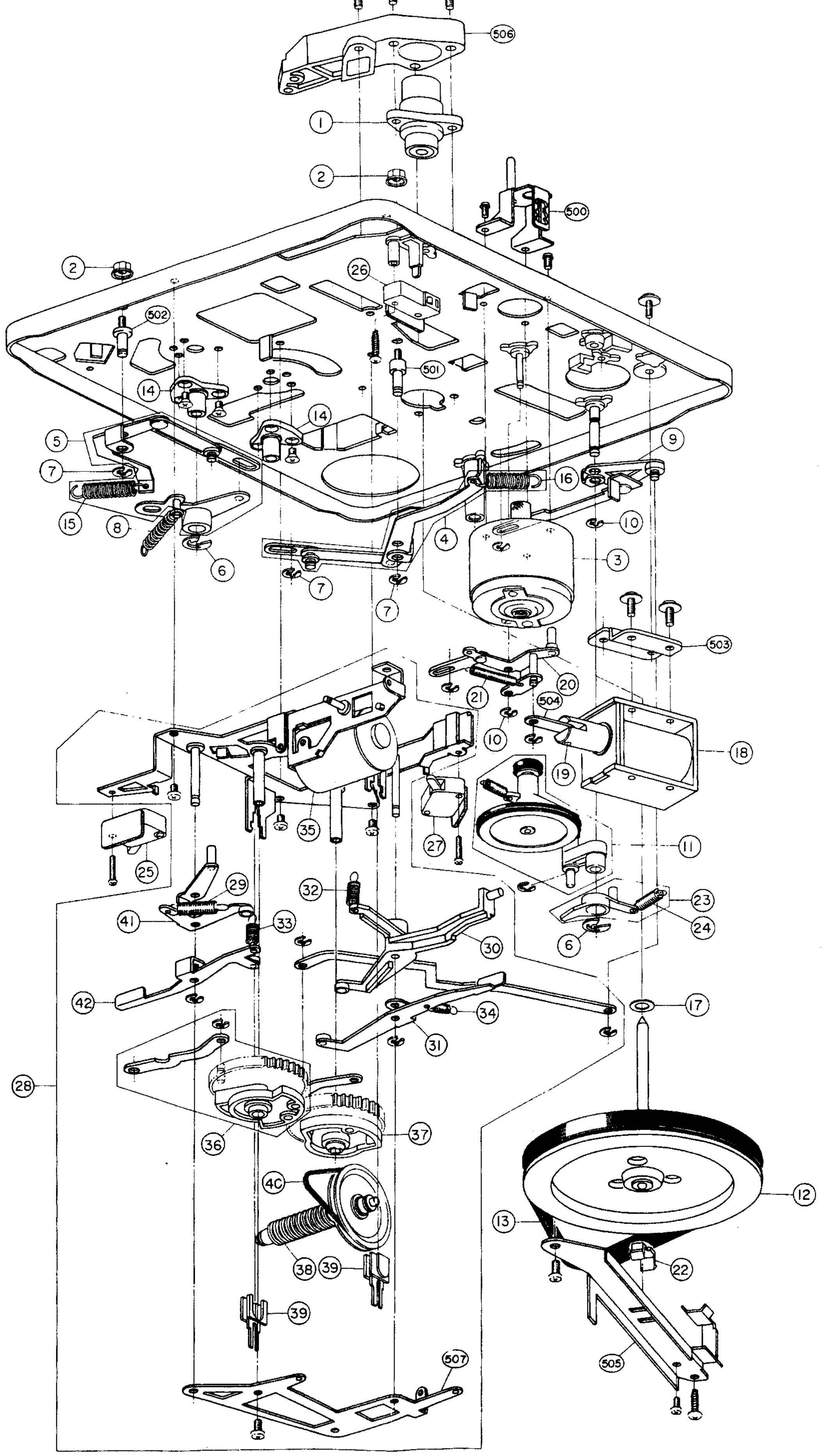
3. MECHA FRAME BLOCK (2)

REF. NO.	PARTS NO.	DESCRIPTION
	MECHA FRAME BLOCK	
3-1	MZ-B321701	HOLDER CAPSTAN PART
3-2	ZS-609434	N FRANGE 30STL CMT
3-3	BM-345265	MOTOR REEL MJB5B51
3-4	BL-B326455	LEVER TOGGLE SP (B) PART
3-5	BL-B326453	LEVER TOGGLE SP (A) PART
3-6	ZW-290283	RING U 285SUP CMT
3-7	ZW-270101	RING E300SUP CMT
3-8	ZG-321769	SP T2-5.0/0.55-35.5 T2-161
3-9	BL-B326464	LEVER ROLLING PART
3-10	ZW-357164	RING E230SUP CMT
3-11	BV-327815	TU IDLER ASSY
3-12	MI-B328611	FLYWHEEL PART
3-13	MB-345018	BELT CAPSTAN
3-14	MV-322302	METAL LOADING
3-15	ZG-328610	SP T2-6.3/0.8-28 T2-198
3-16	ZG-313085	SP T1-6.3/0.8-25.0 T1-197
3-17	ZG-328661	PW41×070×025PSL
	PLUNGER BLOCK	
3-18	EP-345264	SOLENOID W/TAP 1240PLT 15V
3-19	MH-261191	SPRING PIN 3×12
3-20	BL-B604437	LEVER PLUNGER PART
3-21	ZG-328661	SP T2-3.2/0.29-25 T2-066
	HOLDER FLYWHEEL BLOCK	
3-22	VT-326476	HOLDER PIVOT
	LEVER TU IDLER KICK BLOCK	
3-23	BV-V1004A220A	LEVER TU IDLER KICK BLK VS-5EG
3-24	ZG-316197	SP T2-4.0/0.4-20.0 T2-113
3-25	ES-318284	SW LEVER SCL101R23A 1-01-02N (L SW A)
3-26	ES-332384	SW MICRO SS-5-F (RS SW)
3-27	ES-318284	SW LEVER SCL101R23A 1-01-02N (L SW B)
	LOADING BLOCK	
3-28	BV-V1017A250A	LOADING BLK VS-4EG
3-29	ZG-780032	SP TENSION LEVER RETURN
3-30	BL-780033	BRAKE LEVER ASSY
3-31	BL-780034	SW LEVER B ASSY
3-32	ZG-780035	SP BRAKE LEVER
3-33	ZG-780039	SP SW A
3-34	ZG-780040	SP SW B
3-35	BM-749896	LOADING MOTOR SUB ASSY (3)
3-36	VT-780025	LOADING GEAR A ASSY
3-37	VT-780026	LOADING GEAR B SUB ASSY
3-38	VT-780027	LOADING WARM ASSY
3-39	VT-749898	HOLDER GEAR SHAFT
3-40	MB-780029	BELT LOADING
3-41	BL-780030	TENSION LEVER ASSY
3-42	BL-780031	SW LEVER A ASSY

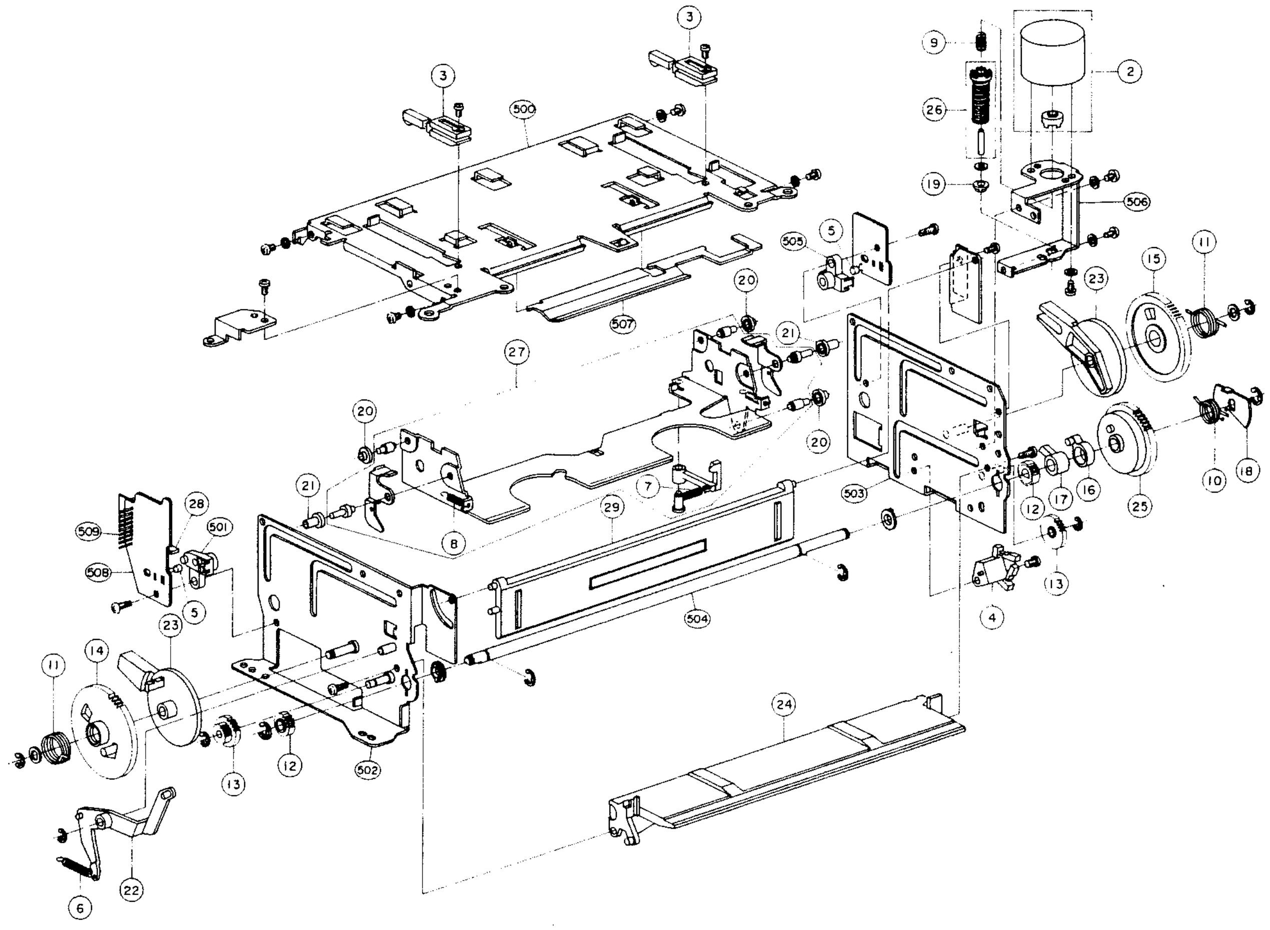
NOTE:

Parts listed in 1 to 42 on the exploded view and list are normaly stocked for replacement purpose. The remaining parts shown in this manual are not normaly stocked, because they are not seldom required for routine service.

MECHA FRAME BLOCK (2)



EJECTOR ASSY (2)



4. EJECTOR ASSY (2)

REF. NO.	PARTS NO.	DESCRIPTION
4-1	BV-352356	EJECTOR ASSY (2)
	EJECTOR ASSY (2)	
4-2	BM-348088	MOTOR MMN-5C2RP
4-3	ES-348089	SW LEAF MSW-1429C 01-1 NO
4-4	ES-352333	SW LEAF MSW-1550C
4-5	ET-318308	PHOTO SENSOR PN202S
4-6	ZG-312922	SP T1-3.2/0.2-10.0 T1-039
4-7	ZG-324331	SP T2-3.2/0.2-12.5 T2-041
4-8	ZG-312944	SP T1-3.2/0.29-12.5 T1-060
4-9	ZG-313212	SP C-6.5/0.6-12.5 C-057
4-10	ZG-749705	SP (A)
4-11	ZG-749695	SP (C)
4-12	ZG-749696	GEAR (A)
4-13	MZ-749692	GEAR (B)
4-14	MZ-749694	GEAR (C)
4-15	MZ-749715	GEAR (D)
4-16	MZ-749697	COLLAR BRAKE (A)
4-17	MZ-749698	COLLAR BRAKE (B)
4-18	MZ-712538	HOLDER SPRING
4-19	MZ-749895	COLLAR WARM
4-20	MR-749685	GUIDE ROLLER (A)
4-21	MR-749686	GUIDE ROLLER (C)
4-22	ML-749691	ARM COVER
4-23	ML-749693	ARM DRIVE
4-24	MZ-749855	GUIDE FRAME
4-25	MZ-749699	WARM WHEEL
4-26	MZ-749853	WARM PART
4-27	MZ-749640	HOLDER CASSETTE
4-28	ET-200418	TR 2SD661 S,T,U
	FINAL ASSEMBLY BLOCK	
4-29	SP-349117A	MASK VS-4EG

NOTE:

Parts listed in 1 to 29 on the exploded view and list are normaly stocked for replacement purpose. The remaining parts shown in this manual are not normaly stocked, because they are not seldom required for routine service.

5. VIDEO (PAL) PC BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
5-1EG	BA-V1015A150H	PC VIDEO (PAL) BLK VS-12EG
5-1EK	BA-V1015A150J	PC VIDEO (PAL) BLK VS-12EK

VIDEO (PAL) PC BOARD

REF. NO.	PARTS NO.	DESCRIPTION
5-IC1	EI-324204	IC AN6310
5-IC2	EI-322309	IC HA11703
5-IC3	EI-324151	IC AN6360
5-IC4	EI-324160	IC AN6362
5-IC5	EI-324182	IC AN6371
5-IC6	EI-324203	IC AN6342N
5-IC7	EI-328593	IC HD14053BP
5-IC8	EI-354399	IC BU4001B
5-IC9	EI-310038	IC MC14025BCP
5-IC10	EI-347781	IC LA6393D
5-IC501	EI-348220	IC BA7022
5-IC503	EI-348229	IC NE555P
5-IC504	EI-698703	IC MC14013BCP
5-IC505	EI-330392	IC MC14070BCP
5-IC506	EI-341516	IC AN6041
5-IC507	EI-307616	IC AN608P
5-IC508	EI-341516	IC AN6041
5-IC509	EI-307616	IC AN608P
5-IC510	EI-348229	IC NE555P
5-IC511	EI-337529	⚠ IC TA78L005AP
5-IC512	EI-348222	IC BA7001
5-IC514	EI-348222	IC BA7001
5-IC515	EI-307616	IC AN608P
5-TR1 to 5	ET-308141	TR 2SC2603 G
5-TR6	ET-308472	TR 2SA1115 E,F,G
5-TR7	ET-308141	TR 2SC2603 G
5-TR8, 9	ET-308472	TR 2SA1115 E,F,G
5-TR10	ET-308141	TR 2SC2603 G
5-TR11	ET-308472	TR 2SA1115 E,F,G
5-TR12, 13	ET-308141	TR 2SC2603 G
5-TR14	ET-350724	TR 2SC1214 B,C,D
5-TR15 to 18	ET-308141	TR 2SC2603 G
5-TR19	ET-308472	TR 2SA1115 E,F,G
5-TR20	ET-344999	TR 2SD1010 R,S,T
5-TR22, 23	ET-308141	TR 2SC2603 G
5-TR24	ET-348931	TR 2SB774 R,S,T
5-TR25, 26	ET-308141	TR 2SC2603 G
5-TR27, 28	ET-308472	TR 2SA1115 E,F,G
5-TR29	ET-308141	TR2SC2603 G
5-TR30	ET-344999	TR 2SD1010 R,S,T
5-TR31	ET-308472	TR 2SA1115 E,F,G
5-TR32	ET-308141	TR 2SC2603 G
5-TR33	ET-308472	TR 2SA1115 E,F,G
5-TR34 to 39	ET-308141	TR 2SC2603 G
5-TR40	ET-308141	TR 2SC2603 G (EG)
5-TR41 to 48	ET-308141	TR 2SC2603 G
5-TR501, 502	ET-308141	TR2SC2603 G
5-TR503	ET-308472	TR 2SA1115 E,F,G
5-TR505 to 509	ET-308141	TR 2SC2603 G
5-TR512 to 515	ET-308141	TR 2SC2603 G
5-TR517, 518	ET-308141	TR 2SC2603G
5-D1, 2	ED-344280	D SILICON H GMA-01-FY2 F05
5-D3, 4	ED-523427	D SILICON H 1SS16
5-D6, 7	ED-523427	D SILICON H 1SS16
5-D8, 9	ED-344280	D SILICON H GMA-01-FY2 F05
5-D11 to 14	ED-344280	D SILICON H GMA-01-FY2 F05
5-D15	ED-301911	D SILICON H DS448 (EG)
5-D17	ED-344280	D SILICON H GMA-01-FY2 F05
5-D19	ED-344280	D SILICON H GMA-01-FY2 F05
5-D501 to 504	ED-344280	D SILICON H GMA-01-FY2 F05
5-D505	ED-346609	D ZENER H HZ9 C1
5-D506	ED-301911	D SILICON H DS448
5-WD1 to 4	ED-347768	D SILICON V MC921 DOUBLE
5-SW1EG	ES-349641	SW SLIDE 00230890(9.3) 2-02-03 (EG)
5-SW1EK	ES-347790	SW SLIDE 00120323 1-01-2 (EK)
5-VR1	EV-336851	R S-FIX H KVSF807U 3P 501
5-VR2	EV-349156	R S-FIX H H0651A 3P 0.05W 681
5-VR3	EV-336852	R S-FIX H KVSF807U 3P 102
5-VR4	EV-336847	R S-FIX H KVSF807U 3P 502
5-VR5	EV-336852	R S-FIX H KVSF807U 3P 102
5-VR6	EV-336853	R S-FIX H KVSF807U 3P 103
5-VR7	EV-336852	R S-FIX H KVSF807U 3P 102
5-VR8	EV-336853	R S-FIX H KVSF807U 3P 103
5-VR9	EV-337957	R S-FIX H TM64K3 3P 0.30W 102
5-VR10	EV-307706	R S-FIX H H0651A 3P 0.05W 471
5-VR11	EV-336850	R S-FIX H KVSF807U 3P 202
5-VR12	EV-336852	R S-FIX H KVSF807U 3P 102
5-VR13	EV-348413	R S-FIX V RVA0911 T3P 202
5-VR14	EV-349156	R S-FIX H H0651A 3P 0.05W 681
5-VR15	EV-307706	R S-FIX H H0651A 3P 0.05W 471
5-VR501	EV-336852	R S-FIX H KVSF807U 3P 102
5-VR504	EV-341225	R S-FIX H KVSF807U 3P 503
5-VR505	EV-332320	R S-FIX H H0651A 3P 0.05W 332
5-VR506	EV-332404	R S-FIX H H0651A 3P 0.05W 101
5-VL501	EO-348206	COIL VARI 1YBTKANS-28929Z 2.20μH
5-L1	EO-330240	COIL FIX 1 EL0606SKI 470K
5-L2	EO-330241	COIL FIX 1 EL0606SKI 221K
5-L3	EO-330249	COIL FIX 1 EL0606SKI 8R2K
5-L4, 5	EO-330248	COIL FIX 1 EL0606SKI 330K
5-L6, 7	EO-330241	COIL FIX 1 EL0606SKI 221K
5-L9	EO-345867	COIL FIX 1 EL0606SKI 120K
5-L10	EO-330246	COIL FIX 1 EL0606SKI 560K
5-L11, 12	EO-330241	COIL FIX 1 EL0606SKI 221K
5-L13	EO-330251	COIL FIX 1 EL0606SKI 471K
5-L14	EO-330246	COIL FIX 1 EL0606SKI 560K
5-L15	EO-330241	COIL FIX 1 EL0606SKI 221K
5-L16	EO-318383	COIL FIX 1 EL07H 682J
5-L17	EO-330241	COIL FIX 1 EL0606SKI 221K
5-L19	EO-330240	COIL FIX 1 EL0606SKI 470K
5-L20	EO-330246	COIL FIX 1 EL0606SKI 560K
5-L21	EO-330241	COIL FIX 1 EL0606SKI 221K
5-L22	EO-330249	COIL FIX 1 EL0606SKI 8R2K
5-L23	EO-330241	COIL FIX 1 EL0606SKI 221K
5-L25	EO-351184	COIL FIX 1 EL0606SKI 821K
5-L26	EO-330249	COIL FIX 1 EL0606SKI 8R2K
5-L27	EO-345870	COIL FIX 1 EL0606SKI 150K
5-L501	EO-330244	COIL FIX 1 EL0606SKI 2R2K
5-L502	EO-330242	COIL FIX 1 EL0606SKI 390K
5-L503 to 506	EO-330249	COIL FIX 1 EL0606SKI 8R2K
5-L508	EO-330252	COIL FIX 1 EL0606SKI 101K
5-FL1	EH-324305	FILTER LC HP LCB-53
5-FL2	EH-345113	FILTER LC LP LJ25LP3.4M01
5-FL3	EH-324339	FILTER LC AP LCB-56
5-FL4	EH-348142	FILTER LC LP LJ25LP3.4M02
5-FL6	EH-324375	FILTER LC BP LCB-57 4.43MHz
5-FL7	EH-345114	FILTER BP LJ20BP 4.43MHz×0.3 4.43MC
5-FL8	EH-324398	FILTER LC LP LCB-58
5-FL9	EH-325807	FILTER LC BP LCB-61 5.06MHz
5-FL501	EH-348223	DL MS-26H H-2K
5-FL502	EH-348224	DL MS-26 (H-3K)
5-FL503	EH-348225	DL MS-19 (L-11)
5-FL504	EH-348367	FILTER LP LPF500
5-FL505	EH-348368	FILTER LP LPF1.50
5-DL1	EH-353396	DL EFD-BR124A13D
5-X1	EI-309878	OSC X'TAL 4.433619MHz
5-X2	EI-322347	OSC X'TAL 4.435571MHz
5-X501	EI-348543	OSC X'TAL HC-18/U 10.240000MHz
5-VC1	EC-346764	C S-FIX H ECR-HA020D11 4-20
5-VC2	EC-346765	C S-FIX H ECR-HA010A11 2.8-10
5-VC3	EC-346764	C S-FIX H ECR-HA020D11 4-20
5-C87	EC-200949	C EC V F05 NP SM 470M 10DC
5-C94	EC-307793	C EC V F05 NP SM 220M 10DC
5-C96	EC-332052	C EC V F05 NP SM 4R7M 35DC
5-C556	EC-200948	C EC V F05 NP SM 1R0M 50DC
5-2	EJ-352707	JACK PLATE VIDEO YKC21-5079

CM DRIVE PC BOARD

REF. NO.	PARTS NO.	DESCRIPTION
5-TR1B	ET-208012	TR 2SD571 K
5-TR2B	ET-308472	TR 2SA1115 E,F,G
5-TR3B	ET-338424	TR 2SB941 Q,R,S
5-TR4B	ET-308472	TR 2SA1115 E,F,G
5-TR5B	ET-308141	TR 2SC2603 G

REF. NO.	PARTS NO.	DESCRIPTION
5-TR6B	ET-308472	TR 2SA1115 E,F,G
5-TR7B	ET-348948	TR 2SD1273 P,Q
5-TR8B	ET-208012	TR 2SD571 K
5-TR9B	ET-308472	TR 2SA1115 E,F,G
5-TR10B	ET-338424	TR 2SB941 Q,R,S
5-TR11B	ET-308141	TR 2SC2603 G
5-TR12B	ET-308472	TR 2SA1115 E,F,G
5-TR13B	ET-348948	TR 2SD1273 P,Q
5-D1B, 2B	ED-344280	D SILICON H GMA-01-FY2 F05
5-L1B, 2B	EO-669273	COIL FIX 2 FL5R200 180
5-FL1B, 2B	EH-330465	FILTER LC DST310-55B271M
5-R6B	ER-636401	R CB H RD 1/2W R50J

6. HIFI AUDIO PC BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
6-1	BA-V1039A030A	PC HIFI AUDIO BLK VS-12EG

HIFI AUDIO PC BOARD

6-IC2	EI-353696	IC TK15021
6-IC3	EI-345759	IC LC7530
6-IC4	EI-354640	IC BU4052B
6-IC5	EI-337360	IC UPC4082C
6-IC6	EI-337529	⚠ TA78L005AP
6-IC7	EI-318270	IC UA556PC
6-IC8	EI-353695	IC BA634
6-IC9	EI-352714	IC HA11752
6-IC10	EI-337529	⚠ IC TA78L005AP
6-IC101	EI-352715	IC AN6391S
6-IC102	EI-352717	IC LF1803
6-IC201	EI-352716	IC HA120066MP
6-TR1, 2	ET-349081	TR 2SC3383 S,T
6-TR3 to 7	ET-308141	TR 2SC2603 G
6-TR8	ET-308472	TR 2SA1115 E,F,G
6-TR9 to 19	ET-308141	TR 2SC2603 G
6-TR20, 21	ET-353734	TR FET 2SJ103, GR, BL
6-TR22, 23	ET-308141	TR 2SC2603 G
6-TR152, 153	ET-349081	TR 2SC3383 S,T
6-TR201	ET-349081	TR 2SC3383 S,T
6-D4	ED-344280	D SILICON H GMA-01-FY2 F05
6-D201 to 203	ED-344280	D SILICON H GMA-01-FY2 F05
6-VR1, 2	EV-332264	R S-FIX H EVM38G 3P 0.30W 503
6-VR152	EV-200403	R S-FIX H EVN38 3P 102
6-VR153	EV-200461	R S-FIX H EVN38 3P 103
6-VR154	EV-200403	R S-FIX H EVN38 3P 102
6-VR155	EV-200461	R S-FIX H EVN38 3P 103
6-VR157	EV-318605	R S-FIX H EVN38 3P 203
6-VR158	EV-200462	R S-FIX H EVN38 3P 503
6-L2 to 4	EO-330252	COIL FIX 1 EL0606SKI 101K
6-L5	EO-354600	COIL FIX 1 LAL02 F05
6-L6 to 8	EO-330252	COIL FIX 1 EL0606SKI 101K
6-L151	EO-345883	COIL FIX 1 EL0606SKI 151J
6-FL1	EH-352718	FILTER BP LJ25BP1.4M01-32
6-FL2	EH-352719	FILTER BP LJ25BP1.8M01-32
6-FL151	EH-352720	FILTER LP LJ15LP0.1M01-32
6-C202	EC-306438	C STY V F05 500 101J 50DC
6-2	EJ-352711	PIN J T5969 P 4P

7. LINEAR AUDIO PC BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
7-1	BA-V1039A140A	PC LINEAR AUDIO BLK VS-12EG

LINEAR AUDIO PC BOARD

7-IC1	EI-348974	IC AN6209
7-IC101	EI-353227	IC M5216L
7-IC102	EI-354780	IC HA17358
7-IC151	EI-353698	IC M50760-365P
7-IC152	EI-355743	⚠ IC TA78009AP
7-IC153	EI-337529	⚠ IC TA78L005AP
7-IC201	EI-337625	IC BA236
7-IC202	EI-200572	IC MC14053BCP
7-TR1	ET-200418	TR 2SD661 S,T,U
7-TR2	ET-308141	TR 2SC2603 G
7-TR3	ET-308472	TR 2SA1115 E,F,G
7-TR5 to 9	ET-308141	TR 2SC2603 G
7-TR10	ET-308472	⚠ TR 2SA1115 E.F,G
7-TR11, 12	ET-308141	TR 2SC2603 G
7-TR13	ET-308472	TR 2SA1115 E,F,G
7-TR14, 15	ET-200402	TR 2SD958 S,T,U
7-TR101	ET-308141	TR 2SC2603 G
7-TR102	ET-338324	TR 2SD1012-V H
7-TR151	ET-308141	TR 2SC2603 G
7-TR153	ET-354415	TR DTA144ES
7-TR154	ET-354414	TR DTC144ES
7-TR155	ET-308472	TR 2SA1115 E,F,G
7-TR156	ET-328868	TR 2SD1012-V G,H
7-TR201, 202	ET-308141	TR 2SC2603 G
7-D3 to 5	ED-344280	D SILICON H GMA-01-FY2 F05
7-D101 to 108	ED-344280	D SILICON H GMA-01-FY2 F05
7-D151 to 154	ED-344280	D SILICON H GMA-01-FY2 F05
7-D155	ED-624903	D SILICON H 1S2473
7-D156	ED-560913	D SILICON V 1S2473VE
7-D157	ED-624903	D SILICON H 1S2473
7-VR1	EV-336853	R S-FIX H KVSF807U 3P 103
7-VR2	EV-341226	R S-FIX H KVSF807V 3P 204
7-VR3	EV-336853	R S-FIX H KVSF807U 3P 103
7-VR4	EV-336854	R S-FIX H KVSF807U 3P 104
7-VR101	EV-336850	R S-FIX H KVSF807U 3P 202
7-VR102	EV-341226	R S-FIX H KVSF807V 3P 204
7-VR201	EV-356296	R S-FIX H TM64K3 3P 0.3W 154
7-VR202	EV-337950	R S-FIX H TM64K3 3P 0.30W 683
7-VR203	EV-356298	R S-FIX TM64K3 3P 0.30W 684
7-L1	EO-321254	COIL FIX 1 FL07H 562J
7-L2	EO-443722	COIL FIX 1FL09H 102J
7-L151	EO-318398	COIL FIX 1 FL9H-26 101K
7-OSC1	EO-347791	⚠ COIL OSC 1 0512033
7-FL1	EO-348978	COIL TUN 1 PAL-682 15.625KC
7-FL2, 3	EO-348977	COIL TUN 1 070-241 70.00KC
7-R203	ER-330274	R MF H F10 1/4W 2003F
7-R215	ER-307730	R MF H F10 1/4W 7502F
7-C32	ER-347263	C MC V F05 FM 221J 500DC

8. SERVO PC BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
8-1	BA-V1015A130C	PC SERVO BLK VS-12EG
	SERVO PC BOARD	
8-IC1	EI-337228	IC M5218L0
8-IC2	EI-326044	IC AN6350
8-IC3	EI-354401	IC BU4066B
8-IC4	EI-200572	IC MC14053BCP
8-IC5	EI-337228	IC M5218L0
8-IC6	EI-347779	IC LA6393S
8-IC7	EI-354399	IC BU4001B
8-IC8	EI-337228	IC M5218L0
8-IC9	EI-300834	IC TC4520BP
8-IC10	EI-321604	IC AN6341N
8-IC11	EI-321605	IC DN819
8-IC12	EI-347781	IC LA6393D
8-IC13	EI-349143	IC MB88202-105G
8-IC14	EI-200572	IC MC14053BCP
8-TR1, 2	ET-308472	TR 2SA1115 E,F,G
8-TR3	ET-308141	TR 2SC2603 G
8-TR4	ET-308472	TR 2SA1115 E,F,G
8-TR5 to 20	ET-308141	TR 2SC2603 G
8-TR21	ET-308472	TR 2SA1115 E,F,G
8-TR22	ET-308141	TR 2SC2603 G
8-TR23	ET-354414	TR DTC144ES
8-D1	ED-348205	D SILICON V MC931 DOUBLE
8-D2 to 4	ED-347767	D SILICON V MC911 DOUBLE
8-D5	ED-347768	D SILICON V MC921 DOUBLE
8-D6	ED-347767	D SILICON V MC911 DOUBLE
8-D7	ED-347768	D SILICON V MC921 DOUBLE
8-D8, 9	ED-347767	D SILICON V MC911 DOUBLE
8-D10	ED-347768	D SILICON V MC921 DOUBLE
8-D11 to 13	ED-347767	D SILICON V MC911 DOUBLE
8-D14	ED-348205	D SILICON V MC931 DOUBLE
8-D15, 16	ED-347768	D SILICON V MC921 DOUBLE
8-D21 to 29	ED-344280	D SILICON H GMA-01-FY2 F05
8-D31	ED-344280	D SILICON H GMA-01-FY2 F05
8-D34 to 38	ED-344280	D SILICON H GMA-01-FY2 F05
8-D39	ED-560913	D SILICON V 1S2473VE
8-VR1	EV-307626	R S-FIX H H0621A 3P 0.30W 103
8-VR3 to 6	EV-336769	R S-FIX H H0621A 3P 0.30W 473
8-VR7, 8	EV-352255	R S-FIX H H0621A 3P 332
8-VR9	EV-307621	R S-FIX H H0651A 3P 0.05W 103
8-VR10	EV-336767	R S-FIX H H0621A 3P 0.30W 683
8-VR13	EV-336770	R S-FIX H H0651A 3P 0.05W 473
8-R20	ER-348973	R MF V 1/4W 6802F
8-R33	ER-309821	R MF V 1/4W 1303F
8-R36	ER-309821	R MF V 1/4W 1303F
8-R146	ER-309825	R MF V 1/4W 2003F

9. PRE AMP PC BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
9-1	BA-V1039A170A	PC PRE BLK VS-12EG
	PRE AMP PC BOARD	
9-IC1	EI-337529	⚠ IC TA78L005AP
9-IC2	EI-353690	IC AN6326N
9-IC3	EI-337964	IC BA401
9-IC4	EI-347764	IC AN6307
9-IC5	EI-307616	IC AN608P
9-TR1 to 14	ET-308141	TR 2SC2603G
9-TR16	ET-308141	TR 2SC2603 G
9-TR17	ET-308472	TR 2SA1115 E,F,G
9-TR18	ET-308141	TR 2SC2603 G
9-D1 to 3	ED-344280	D SILICON H GMA-01-FY2 F05
9-VR1	EV-523708	R S-FIX V V8K1-1 3P 501
9-VR3	EV-523708	R S-FIX V V8K1-1 3P 501
9-L1	EO-330241	COIL FIX I EL0606SKI 221K
9-L2	EO-330252	COIL FIX I EL0606SKI 101K
9-L3	EO-330250	COIL FIX I EL0606SKI 220K
9-L4	EO-330251	COIL FIX I EL0606SKI 471K
9-L5	EO-243977	COIL FIX I FL07H 102J
9-L6	EO-330255	COIL FIX I EL0606SKI 180K
9-L7, 8	EO-330249	COIL FIX I EL0606SKI 8R2K
9-L9	EO-345861	COIL FIX I EL0606SKI 3R3K
9-L10	EO-330245	COIL FIX I EL0606SKI 100K
9-L11	EO-330249	COIL FIX I EL0606SKI 8R2K
9-L12	EO-330252	COIL FIX I EL0606SKI 101K
9-L14	EO-330252	COIL FIX I EL0606SKI 101K
9-L15	EO-355688	COIL FIX I EL0607SKI 220K
9-L16	EO-330250	COIL FIX I EL0606SKI 220K
9-L17	EO-330252	COIL FIX I EL0606SKI 101K
9-L18, 19	EO-330241	COIL FIX I EL0606SKI 221K
9-L20	EO-330252	COIL FIX I EL0606SKI 101K
9-DL1	EH-322365	DL EFD-EN645A11E
9-VC1 to 4	EC-348972	C S-FIX V ECR-HB050G11

10. POWER SUPPLY AND SYSTEM CONTROL PC BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
10-1	BA-V1039A250A	PC POWER/SYSCON BLK VS-12EG
		POWER SUPPLY AND SYSTEM CONTROL PC BOARD
10-IC1	EI-354502	⚠ IC STR9012
10-IC2	EI-347758	⚠ IC TA78012AP
10-IC3	EI-337530	⚠ IC UPC574J
10-IC4	EI-353281	⚠ IC SI3052V
10-IC5	EI-347781	IC LA6393D
10-IC6	EI-347766	IC MBL8243M
10-IC7	EI-347760	IC M54534P
10-IC8	EI-349126	IC MB88501-147M
10-IC9	EI-337519	IC MB88301-A
10-IC10	EI-348958	IC M58981P-45
10-IC11	EI-347779	IC LA6393S
10-IC12	EI-354780	⚠ IC HA17358
10-TR1	ET-337569	TR 2SA675A E,F,H
10-TR2	ET-306719	TR 2SC2236 O,Y
10-TR3, 4	ET-308141	TR 2SC2603 G
10-TR7	ET-306719	TR 2SC2236 O,Y
10-TR8	ET-308141	TR 2SC2603 G
10-TR9	ET-344999	TR 2SD1010 R,S,T
10-TR10 to 13	ET-308141	TR 2SC2603 G
10-TR14	ET-308472	TR 2SA1115 E,F,G
10-TR15	ET-347738	TR 2SA1282A E,F
10-TR16	ET-308141	TR 2SC2603 G
10-TR17, 18	ET-347738	TR 2SA1282A E,F
10-TR19	ET-308472	TR 2SA1115 E,F,G
10-TR20	ET-308141	TR 2SC2603 G
10-TR21	ET-349592	TR 2SC3400
10-TR22	ET-337194	⚠ TR 2SB761 Q,R
10-D1	ED-337618	⚠ D SILICON DS135E-FB6 100/1.0A
10-D2, 3	ED-344280	D SILICON H GMA-01-FY2 F05
10-D4	ED-350748	⚠ D SILICON DBA60C-K15
10-D5	ED-322238	⚠ D SILICON 1B4B41 100/1.0A
10-D6	ED-337618	⚠ D SILICON DS135E-FB6 100/1.0A
10-D7 to 10	ED-344280	D SILICON H GMA-01-FY2 F05
10-D11	ED-346622	D ZENER H HZ30 1
10-D12 to 16	ED-344280	D SILICON H GMA-01-FY2 F05
10-D19	ED-344280	D SILICON H GMA-01-FY2 F05
10-D26	ED-624903	D SILICON H 1S2473
10-D27	ED-346603	⚠ D ZENER H HZ6 A1
10-D28, 29	ED-624903	D SILICON H 1S2473
10-TH1, 2	EX-330533	⚠ POSISTER PTH61G04BD3R3N
10-X1	EI-347434	OSC X'TAL HC-18/U 4.194304MHz
10-X2	EI-330256	OSC CE F85-006 4MHz
10-SF5 to 8	EF-346880	⚠ FUSE ICP-F15 150V 0.6A
10-IB1	EH-348961	COMP R RKC1/8B11D 103J
10-IB2	EH-348962	COMP R RKC1/8B5D 103J
10-IB3	EH-348963	COMP R M-3739
10-R44	ER-337563	R MF H F10 1/4W 4751F
10-R45	ER-353105	R MF V 1/4W 2371F
10-R46	ER-353106	R MF V 1/4W 2351F
10-R75	ER-346164	R MF H F10 1/4W 7500F
10-R76	ER-309815	R MF V 1/4W 1202F
10-R92	ER-314603	R MF V 1/4W 3001F
10-R93	ER-341607	R MF H F10 1/4W 1802F
10-C9	EC-201638	C EC V CUT SM 331M 63.0DC
10-C50	EC-345111	C TT V EF 1R5M 50DC
10-BU1	EY-348960	BUZZER PKM24-4A0
10-BT1	AV-349310	BATTERY PACK 4.8V 60MA-415
10-F1	EF-690996	⚠ FUSE SEMKO T 250V 4.00A
10-F2	EF-601301	⚠ FUSE SEMKO T 250V 2.00A
10-F3	EF-601942	⚠ FUSE SEMKO T 250V 0.63A
10-F4	EF-668474	⚠ FUSE SEMKO T 250V 0.40A

11. MECHA DRIVE PC BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
11-1	BA-V1017A200E	PC MECHA DRIVE BLK VS-8EG
		MECHA DRIVE PC BOARD
11-IC1	EI-347766	IC MBL8243M
11-IC2	EI-347769	IC M54514AP
11-IC3	EI-337503	IC M54532P
11-IC4 to 6	EI-330352	IC BA6109
11-TR1 to 3	ET-346806	TR 2SA1309 Q,R,S
11-TR4	ET-351858	TR 2SC3311 Q,R,S
11-TR6	ET-351858	TR 2SC3311 Q,R,S
11-TR7	ET-347738	TR 2SA1282A E,F
11-TR8,9	ET-346806	TR 2SA1309 Q,R,S
11-TR10	ET-351858	TR 2SC3311 Q,R,S
11-TR11,12	ET-352406	TR 2SD661 R,S,T,U
11-TR13	ET-346806	TR 2SA1309 Q,R,S
11-D1,2	ED-624903	D SILICON H 1S2473
11-D3	ED-344280	D SILICON H GMA-01-FY2 F05
11-D4	ED-624903	D SILICON H 1S2473
11-D5	ED-347899	D ZENER H HZ 20CP
11-D6	ED-624903	D SILICON H 1S2473
11-D7 to 9	ED-344280	D SILICON H GMA-01-FY2 F05
11-D10	ED-346595	D ZENER H HZ3 C2
11-D11,14	ED-344280	D SILICON H GMA-01-FY2 F05
11-D15	ED-624903	D SILICON H 1S2473
11-D16	ED-346604	D ZENER H HZ7 B2
11-D17	ED-624903	D SILICON H 1S2473
11-D18	ED-344280	D SILICON H GMA-01-FY2 F05
11-D21 to 23	ED-344280	D SILICON H GMA-01-FY2 F05
11-D24	ED-349816	D ZENER H MA1056-H
11-D25,26	ED-344280	D SILICON H GMA-01-FY2 F05
11-D28	ED-344280	D SILICON H GMA-01-FY2 F05
11-D29,30	ED-301911	D SILICON H DS448
11-IB1	EH-347735	COMP R M-3724
11-TH1	EX-330533	POSISTER PTH61G04BD3R3N
11-R12	ER-343989	R MF H F05 1/6W 1001F
11-R34	ER-306127	R CB H S15 FS RDS 1/2W 681J
11-R36	ER-349151	R CT P SNP 7W 220K

12. OPERATION PC BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
12-1EG	BA-V1015A060H	PC OPERATION BLK VS-12EG
12-1EK	BA-V1015A060J	PC OPERATION BLK VS-12EK
		OPERATION PC BOARD
12-IC2	EI-347773	IC MB88303M
12-IC3	EI-349121	IC MB88401-233K
12-IC4	EI-348897	IC M51014L
12-TR1 to 4	ET-336845	TR 2SB641 Q,R,S,T
12-TR5	ET-348898	TR FET 2SJ40 C,D,E
12-D1 to 8	ED-624903	D SILICON H 1S2473
12-D9	ED-523427	D SILICON H 1SS16
12-D12	ED-347776	D LED BG5608S GRN
12-D13	ED-249377	D LED GL3AR1 RED
12-D14	ED-347776	D LED BG5608S GRN
12-D15	ED-347777	D LED BR5628S RED
12-D16	ED-249377	D LED GL3AR1 RED
12-D17,18	ED-347777	D LED BR5628S RED
12-D19	ED-283138	D LED GL3PG1 GRN
12-D20 to 22	ED-249377	D LED GL3AR1 RED
12-D24	ED-249377	D LED GL3AR1 RED
12-D25	ED-351202	D PHOTO PN313 AK
12-D28	ED-624903	D SILICON H 1S2473
12-SW1 to 23	ES-347755	SW TACT EVQ-QSE05T
12-SW26,27	ES-347755	SW TACT EVQ-QSE05T
12-VR1	EV-330212	R S-FIX H H0651A 3P 0.05W 152
12-X1	EI-349372	OSC CE CSA4.000MG 4MHz
12-SF1	EF-347968	⚠ FUSE ICP-F10 150V 0.4A
12-IB1	EH-347736	COMP R RKC1/8B15 4.7K J
12-IB2	EH-347737	COMP R RKC1/8 B16 4.7K J
12-2	VT-327212	FILTER PLATE
		LED PC BOARD
12-D11	ED-348462	D LEC SL2221T GRN

13. DEMODULATOR PC BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
13-1EG	BA-V1037A260A	PC DE-MODULATOR BLK VS-6EG (EG)
13-1EK	BA-V1037A260B	PC DE-MODULATOR BLK VS-6EK (EK)
	DEMODULATOR PC BOARD	
13-2EG	EE-345115	TV TUNER CDE1-A04 (EG)
13-2EK	EE-345116	TV TUNER CBE1-013
13-IC1	EI-705494	IC TA7607AP
13-IC2	EI-749828	IC UPC1391H
13-IC3	EI-749829	IC M54573L (EG)
13-Q1	ET-742646	TR 2SC388A
13-Q2 to 4	ET-308141	TR 2SC2603 G
13-Q5	ET-522270	TR 2SC1210 D
13-Q6	ET-308472	TR 2SA1115 E,F,G
13-Q7	ET-308141	TR 2SC2603 G
13-Q8	ET-308472	TR 2SA1115 E,F,G
13-Q9 to 11	ET-308141	TR 2SC2603 G
13-Q13	ET-308141	TR 2SC2603 G
13-Q14,15	ET-711091	TR DTC124F (E,G)
13-D1	ED-604541	D SILICON H 1S2076
13-D2,3	ED-604541	D SILICON H 1S2076 (E,G)
13-D4	ED-742520	D VARACTOR 1SV70-09
13-D5 to 7	ED-604541	D SILICON H 1S2076
13-VR1	EV-749777	R S-FIX 502
13-VR2	EV-749777	R S-FIX 502 (EG)
13-VR3	EV-702567	R S-FIX TT24R 202
13-VR4	EV-702569	R S-FIX TT24R 103B
13-L1	EO-707836	COIL FIX 1 144LZ 0.39μH K
13-L2EG	EO-742653	COIL RF 144LY 2.0μH K
13-L2EK	EO-742654	COIL RF 144LY 2.2μH K
13-L3	EO-749830	COIL RF 199KNAS-12593Z
13-L4	EO-742574	COIL RF P320190
13-L5	EO-705491	COIL TKXNS-279789NK
13-L6	EO-749833	COIL FIX LRL06 820K
13-L7EG	EO-749836	COIL FIX LRL06 100K (EG)
13-L7EK	EO-749834	COIL FIX LRL06 120K (EK)
13-L8	EO-749834	COIL FIX LRL06 120K
13-L10EG	EO-749834	COIL FIX LRL06 120K
13-L10EK	EO-749836	COIL FIX LRL06 100K
13-CF1EG	EH-742662	FILTER SAW SAF38.9MZ51Z
13-CF1EK	EH-742663	FILTER SAW SAF39.5MZ51Z
13-CF2EG	EH-705499	FILTER CE SFE 5.5MHz
13-CF2EK	EH-749840	FILTER CE TPS 6.0MD
13-CF3EG	EH-705499	FILTER CE SFE 5.5MHz
13-CF3EK	EH-705500	FILTER CE SFE 6MHz
13-CF4EG	EH-749841	FILTER CE 5.5MC19A
13-CF4EK	EH-749842	FILTER CE 6.0MC19A
13-R36	ER-713146	R CB H 1/2W 151J
13-R44	ER-742497	⚠ R FUSE 1/4W 220J
13-R54,55	ER-749775	R MF RNL 1/4W 4751F
13-R56	ER-749776	R MF RNL 1/4W 2401F
13-R62	ER-742497	⚠ R FUSE 1/4W 220J
13-R63	ER-701259	⚠ R FUSE SB 1/4W 100J
13-C20	EC-749821	C TT R47M 35V
13-C28	EC-749822	C EC 102M 10V
13-C33	EC-749823	C PP 1H 153J 50DC
13-C39	EC-749824	C PP 1H 683K 50DC
13-C41 to 44	EC-749825	C PP 1H 683J 50DC
13-C45	EC-749826	C TT R68M 35V

14. BAR METER PC BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
14-1	EM-352692	IND LE LT-1127 GRAPH
14-D1	ED-352722	D LED LD-101VR RED
14-D2	ED-352723	D LED LD-603MG GRN
14-SW1,2	ES-347755	SW TACT EVQ-QSE05T

15. AV PC BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
15-J902	EJ-349350	DIN J TCS1661-01-0101 P 6P

16. PHONE JACK BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
16-SW1	ES-354896	SW SLIDE 00230107 02-3 N
16-SW2	ES-352694	SW-SLIDE 00240944
16-J1	EJ-353031	PHONE J 3P HLJ0520-010

17. POWER FILTER PC BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
17-F901	EF-623103	⚠ FUSE SEMKO T 250V 1.00A
17-C901	EC-338411	⚠ C CE V FZ 103P 400AC

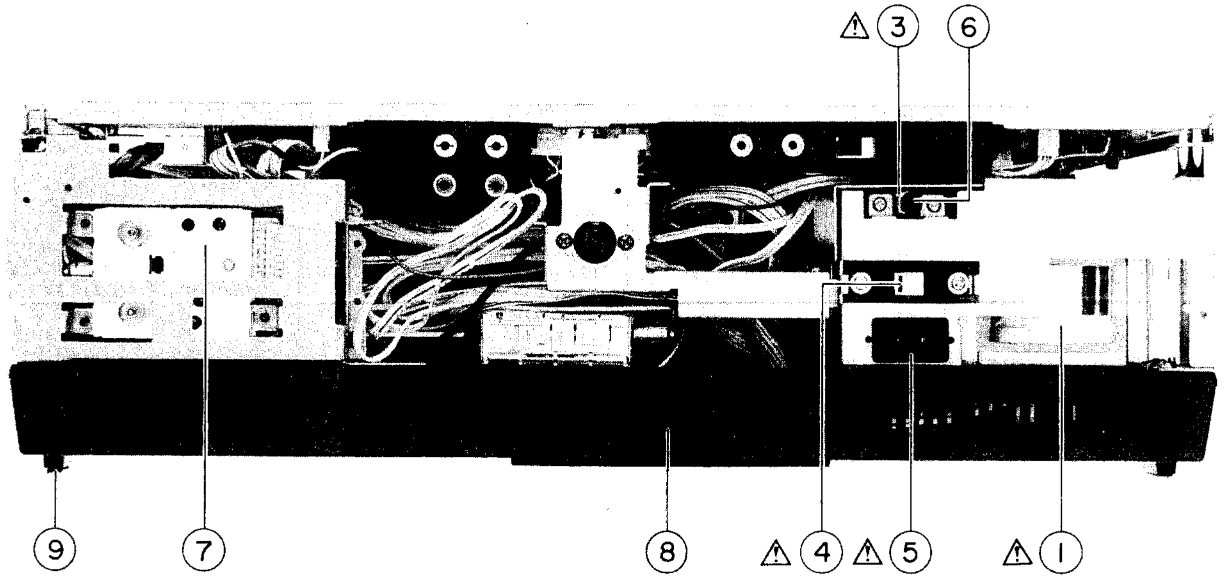
REMOTE CONTROL TRANSMITTER RC-T12

REF. NO.	PARTS NO.	DESCRIPTION
1-1	AV-352701	REMO. CON TRANSMITTER RC-T12-E (ENGLISH) (STANDARD COLOR)
1-1B	AV-354209	REMO. CON TRANSMITTER RC-T12-EB (ENGLISH) (BLACK)
1-2	AX-710025	COVER BATTERY RC-90T (STANDARD COLOR)
1-2B	AV-713375	COVER BATTERY B (BLACK)
1-3	AV-713368	RUBBER BUTTON SHEET CONTACT-ENGLISH (STANDARD COLOR)
1-3B	AV-713371	RUBBER BUTTON SHEET CONTACT-B-ENGLISH (BLACK)
1-4	AV-749979	TERMINAL BATTERY A(+)
1-5	AV-749980	TERMINAL BATTERY B(–)
1-6	AV-749981	TERMINAL BATTERY C
1-IC1	EI-749983	IC UPD1943G
1-X1	EI-749984	OSC CE KBR455BAT
1-TR1	ET-318604	TR 2SD545NP E,F
1-D1,2	ED-557447	D SILICON H 1S1588
1-D3,4	ED-710035	D LED TLN105
1-D5	ED-780019	D LED SEL1123W

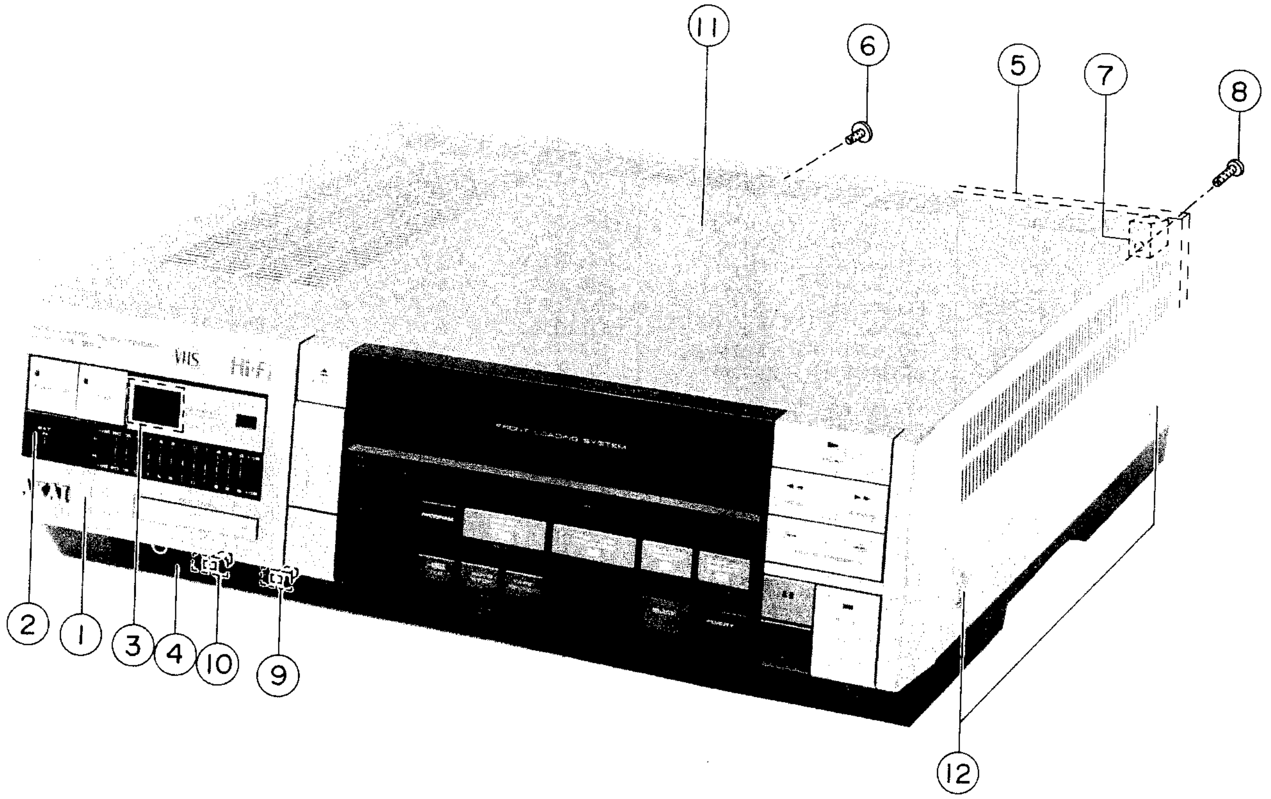
INDEX

IO.	REF. NO.	PARTS NO.	REF. NO.	PARTS NO.	REF. NO.
5	13-C41	ED-344280	10-D14	ED-624903	12-D1
25	13-C42	ED-344280	10-D15	ED-624903	12-D3
25	13-C43	ED-344280	10-D16	ED-624903	12-D4
25	13-C44	ED-344280	10-D19	ED-624903	12-D5
26	13-C45	ED-344280	11-D3	ED-624903	12-D6
77	12-D20	ED-344280	11-D7	ED-624903	12-D7
77	12-D21	ED-344280	11-D8	ED-624903	12-D8
77	12-D22	ED-344280	11-D9	ED-742520	13-D4
77	12-D24	ED-344280	11-D11	EE-345115	13-2EG
77	12-D13	ED-344280	11-D14	EE-345116	13-2EK
77	12-D16	ED-344280	11-D18	EF-346880	10-SF5
38	12-D19	ED-344280	11-D21	EF-346880	10-SF6
11	5-D15	ED-344280	11-D22	EF-346880	10-SF7
11	5-D506	ED-344280	11-D23	EF-346880	10-SF8
11	11-D29	ED-344280	11-D25	EF-347968	12-SF1
11	11-D30	ED-344280	11-D26	EF-601301	10-F2
38	10-D5	ED-344280	11-D28	EF-601942	10-F3
18	10-D1	ED-346595	11-D10	EF-623103	17-F901
18	10-D6	ED-346603	10-D27	EF-668474	10-F4
80	5-D8	ED-346604	11-D16	EF-690996	10-F1
80	5-D9	ED-346609	5-D505	EH-322365	9-DL1
80	5-D11	ED-346622	10-D11	EH-324305	5-FL1
80	5-D12	ED-347767	8-D6	EH-324339	5-FL3
80	5-D13	ED-347767	8-D8	EH-324375	5-FL6
80	5-D14	ED-347767	8-D9	EH-324398	5-FL8
80	5-D17	ED-347767	8-D4	EH-325807	5-FL9
80	5-D19	ED-347767	8-D11	EH-330465	5-FL1B
80	5-D501	ED-347767	8-D12	EH-330465	5-FL2B
80	5-D502	ED-347767	8-D13	EH-345113	5-FL2
80	5-D503	ED-347767	8-D2	EH-345114	5-FL7
80	5-D504	ED-347767	8-D3	EH-347735	11-IB1
80	5-D2B	ED-347768	5-WD1	EH-347736	12-IB1
80	5-D1B	ED-347768	5-WD2	EH-347737	12-IB2
80	5-D1	ED-347768	5-WD3	EH-348142	5-FL4
80	5-D2	ED-347768	5-WD4	EH-348223	5-FL501
80	6-D4	ED-347768	8-D15	EH-348224	5-FL502
80	6-D201	ED-347768	8-D16	EH-348225	5-FL503
80	6-D202	ED-347768	8-D5	EH-348367	5-FL504
80	6-D203	ED-347768	8-D10	EH-348368	5-FL505
80	7-D151	ED-347768	8-D7	EH-348961	10-IB1
80	7-D4	ED-347776	12-D12	EH-348962	10-IB2
80	7-D108	ED-347776	12-D14	EH-348963	10-IB3
80	7-D102	ED-347777	12-D18	EH-352718	6-FL1
80	7-D153	ED-347777	12-D15	EH-352719	6-FL2
80	7-D154	ED-347777	12-D17	EH-352720	6-FL151
80	7-D107	ED-347899	11-D5	EH-353396	5-DL1
80	7-D5	ED-348205	8-D14	EH-705499	13-CF2EG
80	7-D103	ED-348205	8-D1	EH-705499	13-CF3EG
80	7-D104	ED-348462	12-D11	EH-705500	13-CF3EK
80	7-D105	ED-349816	11-D24	EH-742662	13-CF1EG
80	7-D101	ED-350748	10-D4	EH-742663	13-F1EK
80	7-D3	ED-351202	12-D25	EH-749840	13-CF2EK
80	7-D106	ED-352722	14-D1	EH-749841	13-CF4EG
80	7-D152	ED-352723	14-D2	EH-749842	13-CF4EK
80	8-D23	ED-523427	5-D7	EI-200572	7-IC202
80	8-D28	ED-523427	5-D6	EI-200572	8-IC14
80	8-D29	ED-523427	5-D3	EI-200572	8-IC4
80	8-D31	ED-523427	5-D4	EI-300834	8-IC9
80	8-D24	ED-523427	12-D9	EI-307616	5-IC507
80	8-D34	ED-560913	7-D156	EI-307616	5-IC509
80	8-D25	ED-560913	8-D39	EI-307616	5-IC515
80	8-D22	ED-604541	13-D1	EI-307616	9-IC5
80	8-D35	ED-604541	13-D2	EI-309878	5-X1
80	8-D36	ED-604541	13-D3	EI-310038	5-IC9
80	8-D37	ED-604541	13-D5	EI-318270	6-IC7
80	8-D26	ED-604541	13-D6	EI-321604	8-IC10
80	8-D21	ED-604541	13-D7	EI-321605	8-IC11
80	8-D38	ED-624903	7-D155	EI-322309	5-IC2
80	8-D27	ED-624903	7-D157	EI-322347	5-X2
80	9-D1	ED-624903	10-D26	EI-324151	5-IC3
80	9-D2	ED-624903	10-D28	EI-324160	5-IC4
80	9-D3	ED-624903	10-D29	EI-324182	5-IC5
80	10-D2	ED-624903	11-D1	EI-324203	5-IC6
80	10-D3	ED-624903	11-D2	EI-324204	5-IC1
80	10-D7	ED-624903	11-D4	EI-326044	8-IC2
80	10-D8	ED-624903	11-D6	EI-328593	5-IC7
80	10-D9	ED-624903	11-D15	EI-330256	10-X2
80	10-D10	ED-624903	11-D17	EI-330352	11-IC4
80	10-D12	ED-624903	12-D28	EI-330352	11-IC5
80	10-D13	ED-624903	12-D2	EI-330352	11-IC6

POWER AND RF BLOCK



FINAL ASSEMBLY BLOCK



18. POWER AND RF BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
18-1EG	BT-354503	⚠ TRANS POWER VS-12-1
18-1EK	BT-354518	⚠ TRANS POWER VS-12-2
18-2x	ZS-313796	ST BID40 × 06STL CMT
18-3	ES-347911	⚠ SW PUSH ESB-8213V 01-1
18-4	ES-309312	⚠ SW SLIDE 00220481 02-2
18-5	EJ-301513	⚠ SOCKET INLET S-16453 E 2P
18-6	SK-531235	KNOB PUSH SW
18-7EG	BV-353839	RF CONVERTOR MDL6-023 (EG)
*18-7EK-B	BV-345125	RF MODULATOR MIW3-253 (EK-B) (OLD)
18-7EK	BV-353840	RF CONVERTOR MIL6-023 (EK, EK-B) (NEW)
18-8	SP-343189	HOLDER BATTERY
18-9	SA-345057	RUBBER FOOT

NOTE:

*18-7EK-B: Due to the change, EK-B model after SERIAL NO.90650 are employed new parts.

19. FINAL ASSEMBLY BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
19-1EG	BD-B353085A	PANEL FRNOT VS-12EG PART
19-1EK	BD-B353085B	PANEL FRONT VS-12EK PART
19-1EKB	BD-B353085H	PANEL FRONT VS-12EK-B PART
19-2	SE-353088	WINDOW BAR METER (ENGLISH)
19-2B	SE-353088F	WINDOW BAR METER EK-B
19-3	SE-353090	WINDOW REMO. CON.
19-4	SE-353083A	MASK PHONE JACK(ENGLISH)
19-5EG	SP-353341L	PANEL REAR VA-12EG
19-5EK	SP-353341M	PANEL REAR VS-12EK
19-6	ZS-447840	T2BR30 × 08STL CMT
19-7	SA-345059	FOOT
19-8	ZS-462802	T2BR30 × 15STL CMT
19-9	SE-353082A	MASK SLIDE SWITCH (A) (MASK AUDIO SELECTOR SW)
19-10	SE-353082B	MASK SLIDE SWITCH (B) (MASK INPUT SELECTOR SW)
19-11	SP-345054D	COVER UPPER(B)
19-11B	SP-345054G	COVER UPPER EK-B
19-12	ZS-321783	ST BID40 × 10STL NI3
19-13xEG	EW-347673	⚠ AC CORD 2 CORES SP22-12460/CEE
19-13xEK	EW-302995	⚠ AC CORD 2 CORES VM0112/OCFL B
19-14x	EW-348414	CORD PAL (AERIAL CABLE)

SYMBOL FOR COLOR VARIATION
NON: STANDARD COLOR
B : BLACK

INDEX

VS-12EG/EK

PARTS NO.	REF. NO.
AV-349310	10-BT1
BA-M3202A020A	1-27
BA-V1015A060H	12-1EG
BA-V1015A060J	12-1EK
BA-V1015A130C	8-1
BA-V1015A150H	5-1EG
BA-V1015A150J	5-1EK
BA-V1017A200E	11-1
BA-V1037A260A	13-1EG
BA-V1037A260B	13-1EK
BA-V1039A030A	6-1
BA-V1039A140A	7-1
BA-V1039A170A	9-1
BA-V1039A250A	10-1
BB-V1015A200A	2-1
BD-B353085A	19-1EG
BD-B353085B	19-1EK
BD-B353085H	19-1EKB
BL-B322027	2-33
BL-B322090	2-31
BL-B326220	2-55
BL-B326296	2-3
BL-B326453	3-5
BL-B326455	3-4
BL-B326464	3-9
BL-B326468	2-16
BL-B348098	2-14
BL-B348989	2-8
BL-B604437	3-20
BL-V1004A090A	2-37
BL-V1004A100A	2-38
BL-V1004A120A	2-42
BL-V1004A130A	2-43
BL-V1004A140A	2-44
BL-V1004A170B	2-52
BL-V1017A140A	1-18
BL-780030	3-41
BL-780031	3-42
BL-780033	3-30
BL-780034	3-31
BM-B344824	1-26
BM-345265	3-3
BM-348088	4-2
BM-352233	2-51
BM-749896	3-35
BR-347731	2-47
BR-347732	2-48
BT-354503	18-1EG
BT-354518	18-1EK
BV-V1004A220A	3-23
BV-V1009A320A	2-7
BV-V1017A250A	3-28
BV-V1039A110A	1-3
BV-V1039A120A	1-2
BV-V9009A010A	1-1
BV-327815	3-11
BV-345125	18-7EK-B
BV-352356	4-1
BV-353839	18-7EG
BV-353840	18-7EK
EC-200948	5-C556
EC-200949	5-C87
EC-201638	10-C9
EC-306438	6-C202
EC-307793	5-C94
EC-332052	5-C96
EC-338411	17-C901
EC-345111	10-C50
EC-346764	5-VC1
EC-346764	5-VC3
EC-346765	5-VC2
EC-347263	7-C32
EC-348972	9-VC1
EC-348972	9-VC2
EC-348972	9-VC4
EC-348972	9-VC3
EC-749821	13-C20
EC-749822	13-C28
EC-749823	13-C33
EC-749824	13-C39
EC-749825	13-C41
EC-749825	13-C42
EC-749825	13-C43
EC-749825	13-C44
EC-749826	13-C45
ED-249377	12-D20
ED-249377	12-D21
ED-249377	12-D22
ED-249377	12-D24
ED-249377	12-D13
ED-249377	12-D16
ED-283138	12-D19
ED-301911	5-D15
ED-301911	5-D506
ED-301911	11-D29
ED-301911	11-D30
ED-322238	10-D5
ED-337618	10-D1
ED-337618	10-D6
ED-344280	5-D8
ED-344280	5-D9
ED-344280	5-D11
ED-344280	5-D12
ED-344280	5-D13
ED-344280	5-D14
ED-344280	5-D17
ED-344280	5-D19
ED-344280	5-D501
ED-344280	5-D502
ED-344280	5-D503
ED-344280	5-D504
ED-344280	5-D2B
ED-344280	5-D1B
ED-344280	5-D1
ED-344280	5-D2
ED-344280	6-D4
ED-344280	6-D201
ED-344280	6-D202
ED-344280	6-D203
ED-344280	7-D151
ED-344280	7-D4
ED-344280	7-D108
ED-344280	7-D102
ED-344280	7-D153
ED-344280	7-D154
ED-344280	7-D107
ED-344280	7-D5
ED-344280	7-D103
ED-344280	7-D104
ED-344280	7-D105
ED-344280	7-D101
ED-344280	7-D3
ED-344280	7-D106
ED-344280	7-D152
ED-344280	8-D23
ED-344280	8-D28
ED-344280	8-D29
ED-344280	8-D31
ED-344280	8-D24
ED-344280	8-D34
ED-344280	8-D25
ED-344280	8-D22
ED-344280	8-D35
ED-344280	8-D36
ED-344280	8-D37
ED-344280	8-D26
ED-344280	8-D21
ED-344280	8-D38
ED-344280	8-D27
ED-344280	9-D1
ED-344280	9-D2
ED-344280	9-D3
ED-344280	10-D2
ED-344280	10-D3
ED-344280	10-D7
ED-344280	10-D8
ED-344280	10-D9
ED-344280	10-D10
ED-344280	10-D12
ED-344280	10-D13
ED-344280	10-D14
ED-344280	10-D15
ED-344280	10-D16
ED-344280	10-D19
ED-344280	11-D3
ED-344280	11-D7
ED-344280	11-D8
ED-344280	11-D9
ED-344280	11-D11
ED-344280	11-D14
ED-344280	11-D18
ED-344280	11-D21
ED-344280	11-D22
ED-344280	11-D23
ED-344280	11-D25
ED-344280	11-D26
ED-344280	11-D28
ED-346595	11-D10
ED-346603	10-D27
ED-346604	11-D16
ED-346609	5-D505
ED-346622	10-D11
ED-347767	8-D6
ED-347767	8-D8
ED-347767	8-D9
ED-347767	8-D4
ED-347767	8-D11
ED-347767	8-D12
ED-347767	8-D13
ED-347767	8-D2
ED-347767	8-D3
ED-347768	5-WD1
ED-347768	5-WD2
ED-347768	5-WD3
ED-347768	5-WD4
ED-347768	8-D15
ED-347768	8-D16
ED-347768	8-D5
ED-347768	8-D10
ED-347768	8-D7
ED-347776	12-D12
ED-347776	12-D14
ED-347777	12-D18
ED-347777	12-D15
ED-347777	12-D17
ED-347899	11-D5
ED-348205	8-D14
ED-348205	8-D1
ED-348462	12-D11
ED-349816	11-D24
ED-350748	10-D4
ED-351202	12-D25
ED-352722	14-D1
ED-352723	14-D2
ED-523427	5-D7
ED-523427	5-D6
ED-523427	5-D3
ED-523427	5-D4
ED-523427	12-D9
ED-560913	7-D156
ED-560913	8-D39
ED-604541	13-D1
ED-604541	13-D2
ED-604541	13-D3
ED-604541	13-D5
ED-604541	13-D6
ED-604541	13-D7
ED-624903	7-D155
ED-624903	7-D157
ED-624903	10-D26
ED-624903	10-D28
ED-624903	10-D29
ED-624903	11-D1
ED-624903	11-D2
ED-624903	11-D4
ED-624903	11-D6
ED-624903	11-D15
ED-624903	11-D17
ED-624903	12-D28
ED-624903	12-D2
ED-624903	12-D1
ED-624903	12-D3
ED-624903	12-D4
ED-624903	12-D5
ED-624903	12-D6
ED-624903	12-D7
ED-624903	12-D8
ED-742520	13-D4
EE-345115	13-2EG
EE-345116	13-2EK
EF-346880	10-SF5
EF-346880	10-SF6
EF-346880	10-SF7
EF-346880	10-SF8
EF-347968	12-SF1
EF-601301	10-F2
EF-601942	10-F3
EF-623103	17-F901
EF-668474	10-F4
EF-690996	10-F1
EH-322365	9-DL1
EH-324305	5-FL1
EH-324339	5-FL3
EH-324375	5-FL6
EH-324398	5-FL8
EH-325807	5-FL9
EH-330465	5-FL1B
EH-330465	5-FL2B
EH-345113	5-FL2
EH-345114	5-FL7
EH-347735	11-IB1
EH-347736	12-IB1
EH-347737	12-IB2
EH-348142	5-FL4
EH-348223	5-FL501
EH-348224	5-FL502
EH-348225	5-FL503
EH-348367	5-FL504
EH-348368	5-FL505
EH-348961	10-IB1
EH-348962	10-IB2
EH-348963	10-IB3
EH-352718	6-FL1
EH-352719	6-FL2
EH-352720	6-FL151
EH-353396	5-DL1
EH-705499	13-CF2EG
EH-705499	13-CF3EG
EH-705500	13-CF3EK
EH-742662	13-CF1EG
EH-742663	13-F1EK
EH-749840	13-CF2EK
EH-749841	13-CF4EG
EH-749842	13-CF4EK
EI-200572	7-IC202
EI-200572	8-IC14
EI-200572	8-IC4
EI-300834	8-IC9
EI-307616	5-IC507
EI-307616	5-IC509
EI-307616	5-IC515
EI-307616	9-IC5
EI-309878	5-X1
EI-310038	5-IC9
EI-318270	6-IC7
EI-321604	8-IC10
EI-321605	8-IC11
EI-322309	5-IC2
EI-322347	5-X2
EI-324151	5-IC3
EI-324160	5-IC4
EI-324182	5-IC5
EI-324203	5-IC6
EI-324204	5-IC1
EI-326044	8-IC2
EI-328593	5-IC7
EI-330256	10-X2
EI-330352	11-IC4
EI-330352	11-IC5
EI-330352	11-IC6

INDEX

VS-12EG/EK

PARTS NO.	REF. NO.	PARTS NO.	REF. NO.	PARTS NO.	REF. NO.	PARTS NO.	REF. NO.
EI-330392	5-IC505	EO-330240	5-L1	ER-307730	7-R215	ET-308141	5-TR7
EI-337228	8-IC5	EO-330240	5-L19	ER-309815	10-R76	ET-308141	5-TR10
EI-337228	8-IC1	EO-330241	5-L2	ER-309821	8-R36	ET-308141	5-TR12
EI-337228	8-IC8	EO-330241	5-L6	ER-309821	8-R33	ET-308141	5-TR13
EI-337360	6-IC5	EO-330241	5-L7	ER-309825	8-R146	ET-308141	5-TR15
EI-337503	11-IC3	EO-330241	5-L11	ER-314603	10-R92	ET-308141	5-TR16
EI-337519	10-IC9	EO-330241	5-L12	ER-330274	7-R203	ET-308141	5-TR17
EI-337529	5-IC511	EO-330241	5-L15	ER-333586	1-R12	ET-308141	5-TR18
EI-337529	6-IC6	EO-330241	5-L17	ER-337563	10-R44	ET-308141	5-TR22
EI-337529	6-IC10	EO-330241	5-L21	ER-341607	10-R93	ET-308141	5-TR23
EI-337529	7-IC153	EO-330241	5-L23	ER-343989	11-R12	ET-308141	5-TR25
EI-337529	9-IC1	EO-330241	5-L24	ER-346164	10-R75	ET-308141	5-TR29
EI-337530	10-IC3	EO-330241	9-L1	ER-348973	8-R20	ET-308141	7-TR202
EI-337625	7-IC201	EO-330241	9-L19	ER-349151	11-R36	ET-308141	7-TR7
EI-337964	9-IC3	EO-330241	9-L18	ER-353105	10-R45	ET-308141	7-TR201
EI-341516	5-IC506	EO-330242	5-L502	ER-353106	10-R46	ET-308141	7-TR12
EI-341516	5-IC508	EO-330244	5-L501	ER-636401	5-R6B	ET-308141	7-TR2
EI-344921	1-IC1	EO-330245	9-L10	ER-701259	13-R63	ET-308141	7-TR5
EI-345759	6-IC3	EO-330246	5-L10	ER-713146	13-R36	ET-308141	7-TR9
EI-347434	10-X1	EO-330246	5-L14	ER-742497	13-R44	ET-308141	7-TR151
EI-347733	2-61	EO-330246	5-L20	ER-742497	13-R62	ET-308141	7-TR8
EI-347733	2-62	EO-330248	5-L4	ER-749775	13-R54	ET-308141	8-TR19
EI-347758	10-IC2	EO-330248	5-L5	ER-749775	13-R55	ET-308141	8-TR6
EI-347760	10-IC7	EO-330249	5-L3	ER-749776	13-R56	ET-308141	8-TR8
EI-347764	9-IC4	EO-330249	5-L22	ES-309312	18-4	ET-308141	8-TR3
EI-347766	10-IC6	EO-330249	5-L26	ES-318284	3-25	ET-308141	8-TR7
EI-347766	11-IC1	EO-330249	5-L503	ES-318284	3-27	ET-308141	8-TR5
EI-347769	11-IC2	EO-330249	5-L504	ES-332384	3-26	ET-308141	8-TR12
EI-347773	12-IC2	EO-330249	5-L506	ES-347755	12-SW1	ET-308141	8-TR9
EI-347779	8-IC6	EO-330249	5-L505	ES-347755	12-SW2	ET-308141	8-TR15
EI-347779	10-IC11	EO-330249	9-L7	ES-347755	12-SW3	ET-308141	8-TR20
EI-347781	5-IC10	EO-330249	9-L11	ES-347755	12-SW4	ET-308141	8-TR22
EI-347781	8-IC12	EO-330249	9-L8	ES-347755	12-SW5	ET-308141	8-TR18
EI-347781	10-IC5	EO-330250	9-L3	ES-347755	12-SW6	ET-308141	8-TR13
EI-348220	5-IC501	EO-330250	9-L16	ES-347755	12-SW7	ET-308141	8-TR11
EI-348222	5-IC514	EO-330251	5-L13	ES-347755	12-SW8	ET-308141	8-TR10
EI-348222	5-IC512	EO-330251	9-L4	ES-347755	12-SW9	ET-308141	8-TR17
EI-348229	5-IC503	EO-330252	5-L508	ES-347755	12-SW10	ET-308141	8-TR14
EI-348229	5-IC510	EO-330252	6-L2	ES-347755	12-SW11	ET-308141	8-TR16
EI-348543	5-X501	EO-330252	6-L3	ES-347755	12-SW12	ET-308141	9-TR18
EI-348897	12-IC4	EO-330252	6-L4	ES-347755	12-SW13	ET-308141	9-TR6
EI-348958	10-IC10	EO-330252	6-L6	ES-347755	12-SW14	ET-308141	9-TR8
EI-348974	7-IC1	EO-330252	6-L8	ES-347755	12-SW15	ET-308141	9-TR12
EI-349121	12-IC3	EO-330252	6-L7	ES-347755	12-SW16	ET-308141	9-TR13
EI-349126	10-IC8	EO-330252	9-L14	ES-347755	12-SW17	ET-308141	9-TR1
EI-349143	8-IC13	EO-330252	9-L2	ES-347755	12-SW18	ET-308141	9-TR3
EI-349372	12-X1	EO-330252	9-L12	ES-347755	12-SW19	ET-308141	9-TR11
EI-352714	6-IC9	EO-330252	9-L20	ES-347755	12-SW20	ET-308141	9-TR16
EI-352715	6-IC101	EO-330252	9-L17	ES-347755	12-SW21	ET-308141	9-TR14
EI-352716	6-IC201	EO-330255	9-L6	ES-347755	12-SW22	ET-308141	9-TR10
EI-352717	6-IC102	EO-345861	9-L9	ES-347755	12-SW23	ET-308141	9-TR2
EI-353227	7-IC101	EO-345867	5-L9	ES-347755	12-SW26	ET-308141	9-TR4
EI-353281	10-IC4	EO-345870	5-L27	ES-347755	12-SW27	ET-308141	9-TR9
EI-353690	9-IC2	EO-345883	6-L151	ES-347755	14-SW1	ET-308141	9-TR5
EI-353695	6-IC8	EO-347791	7-OSC1	ES-347755	14-SW2	ET-308141	9-TR7
EI-353696	6-IC2	EO-348206	5-VL501	ES-347790	5-SW1EK	ET-308141	10-TR10
EI-353698	7-IC151	EO-348977	7-FL2	ES-347911	18-3	ET-308141	10-TR3
EI-354399	5-IC8	EO-348977	7-FL3	ES-348089	4-3	ET-308141	10-TR13
EI-354399	8-IC7	EO-348978	7-FL1	ES-349641	5-SW1EG	ET-308141	10-TR4
EI-354401	8-IC3	EO-351184	5-L25	ES-352333	4-4	ET-308141	10-TR11
EI-354502	10-IC1	EO-354600	6-L5	ES-352694	16-SW2	ET-308141	10-TR12
EI-354640	6-IC4	EO-355688	9-L15	ES-354896	16-SW1	ET-308141	10-TR8
EI-354780	7-IC102	EO-443722	7-L2	ET-200402	7-TR14	ET-308141	10-TR16
EI-354780	10-IC12	EO-669273	5-L1B	ET-200402	7-TR15	ET-308141	10-TR20
EI-355743	7-IC152	EO-669273	5-L2B	ET-200418	4-28	ET-308141	13-Q4
EI-698703	5-IC504	EO-705491	13-L5	ET-200418	7-TR1	ET-308141	5-TR32
EI-705494	13-IC1	EO-707836	13-L1	ET-208012	5-TR1B	ET-308141	5-TR35
EI-749828	13-IC2	EO-742574	13-L4	ET-208012	5-TR8B	ET-308141	5-TR36
EI-749829	13-IC3	EO-742653	13-L2EG	ET-306719	10-TR2	ET-308141	5-TR37
EJ-301513	18-5	EO-742654	13-L2EK	ET-306719	10-TR7	ET-308141	5-TR38
EJ-349350	15-J902	EO-749830	13-L3	ET-308141	5-TR42	ET-308141	5-TR39
EJ-352707	5-2	EO-749833	13-L6	ET-308141	5-TR26	ET-308141	5-TR40
EJ-352711	6-2	EO-749834	13-L10EG	ET-308141	5-TR34	ET-308141	5-TR41
EJ-353031	16-J1	EO-749834	13-L7EK	ET-308141	5-TR5B	ET-308141	5-TR43
EL-332451	2-25	EO-749834	13-L8	ET-308141	5-TR11B	ET-308141	5-TR44
EM-352692	14-1	EO-749836	13-L7EG	ET-308141	5-TR1	ET-308141	5-TR45
EO-243977	9-L5	EO-749836	13-L10EK	ET-308141	5-TR2	ET-308141	5-TR46
EO-318383	5-L16	EP-345264	3-18	ET-308141	5-TR3	ET-308141	5-TR47
EO-318398	7-L151	EQ-348929	1-9	ET-308141	5-TR4	ET-308141	5-TR48
EO-321254	7-L1	ER-306127	11-R34	ET-308141	5-TR5	ET-308141	5-TR501

INDEX

VS-12EG/EK

PARTS NO.	REF. NO.
ET-308141	5-TR502
ET-308141	5-TR505
ET-308141	5-TR506
ET-308141	5-TR507
ET-308141	5-TR508
ET-308141	5-TR509
ET-308141	5-TR512
ET-308141	5-TR513
ET-308141	5-TR514
ET-308141	5-TR515
ET-308141	5-TR517
ET-308141	5-TR518
ET-308141	6-TR19
ET-308141	6-TR3
ET-308141	6-TR17
ET-308141	6-TR15
ET-308141	6-TR4
ET-308141	6-TR5
ET-308141	6-TR6
ET-308141	6-TR9
ET-308141	6-TR10
ET-308141	6-TR12
ET-308141	6-TR13
ET-308141	6-TR14
ET-308141	6-TR16
ET-308141	6-TR18
ET-308141	6-TR22
ET-308141	6-TR23
ET-308141	6-TR7
ET-308141	6-TR11
ET-308141	7-TR11
ET-308141	7-TR6
ET-308141	7-TR101
ET-308141	13-Q10
ET-308141	13-Q9
ET-308141	13-Q7
ET-308141	13-Q2
ET-308141	13-Q3
ET-308141	13-Q13
ET-308141	13-Q11
ET-308472	5-TR6
ET-308472	5-TR11
ET-308472	5-TR2B
ET-308472	5-TR33
ET-308472	5-TR6B
ET-308472	5-TR9B
ET-308472	5-TR31
ET-308472	5-TR19
ET-308472	5-TR8
ET-308472	5-TR4B
ET-308472	5-TR27
ET-308472	5-TR9
ET-308472	5-TR28
ET-308472	5-TR12B
ET-308472	5-TR503
ET-308472	6-TR8
ET-308472	7-TR13
ET-308472	7-TR3
ET-308472	7-TR10
ET-308472	7-TR155
ET-308472	8-TR2
ET-308472	8-TR1
ET-308472	8-TR4
ET-308472	8-TR21
ET-308472	9-TR17
ET-308472	10-TR19
ET-308472	10-TR14
ET-308472	13-Q8
ET-308472	13-Q6
ET-318308	4-5
ET-328868	7-TR156
ET-336845	12-TR1
ET-336845	12-TR4
ET-336845	12-TR3
ET-336845	12-TR2
ET-337194	10-TR22
ET-337569	10-TR1
ET-338324	7-TR102
ET-338424	5-TR10B
ET-338424	5-TR3B
ET-344999	5-TR30
ET-344999	5-TR20
ET-344999	10-TR9
ET-346806	11-TR9
ET-346806	11-TR1
ET-346806	11-TR2
ET-346806	11-TR13
ET-346806	11-TR8
ET-346806	11-TR3
ET-347738	10-TR18
ET-347738	10-TR17
ET-347738	10-TR15
ET-347738	11-TR7
ET-348898	12-TR5
ET-348931	5-TR24
ET-348948	5-TR13B
ET-348948	5-TR7B
ET-349081	6-TR153
ET-349081	6-TR201
ET-349081	6-TR152
ET-349081	6-TR2
ET-349081	6-TR1
ET-349592	10-TR21
ET-350724	5-TR14
ET-351858	11-TR4
ET-351858	11-TR10
ET-351858	11-TR6
ET-352406	11-TR11
ET-352406	11-TR12
ET-353734	6-TR21
ET-353734	6-TR20
ET-354414	7-TR154
ET-354414	8-TR23
ET-354415	7-TR153
ET-522270	13-Q5
ET-711091	13-Q14
ET-711091	13-Q15
ET-742646	13-Q1
EV-200403	6-VR154
EV-200403	6-VR152
EV-200461	6-VR153
EV-200461	6-VR155
EV-200462	6-VR158
EV-307621	8-VR9
EV-307626	8-VR1
EV-307706	5-VR10
EV-307706	5-VR15
EV-318605	6-VR157
EV-330212	12-VR1
EV-332264	6-VR2
EV-332264	6-VR1
EV-332320	5-VR505
EV-332404	5-VR506
EV-336767	8-VR10
EV-336769	8-VR6
EV-336769	8-VR4
EV-336769	8-VR3
EV-336769	8-VR5
EV-336770	8-VR13
EV-336847	5-VR4
EV-336850	5-VR11
EV-336850	7-VR101
EV-336851	5-VR1
EV-336852	5-VR3
EV-336852	5-VR5
EV-336852	5-VR7
EV-336852	5-VR12
EV-336852	5-VR501
EV-336853	5-VR6
EV-336853	5-VR8
EV-336853	7-VR3
EV-336853	7-VR1
EV-336854	7-VR4
EV-337950	7-VR202
EV-337957	5-VR9
EV-341225	5-VR504
EV-341226	7-VR102
EV-341226	7-VR2
EV-348413	5-VR13
EV-349156	5-VR2
EV-349156	5-VR14
EV-352255	8-VR8
EV-352255	8-VR7
EV-356296	7-VR201
EV-356298	7-VR203
EV-523708	9-VR3
EV-523708	9-VR1
EV-702567	13-VR3
EV-702569	13-VR4
EV-749777	13-VR1
EV-749777	13-VR2
EW-302995	19-13XEK
EW-347673	19-13XEG
EW-348414	19-14X
EX-330533	10-TH1
EX-330533	10-TH2
EX-330533	11-TH1
EX-351674	1-8
EY-348960	10-BU1
HC-347163	1-28
HC-347811	1-19
HE-325273	2-2
HZ-342726	1-21
HZ-342726	2-28
HZ-343076	1-20
HZ-343076	2-27
MB-345018	3-13
MB-780029	3-40
MH-261191	3-19
MH-321688	2-22
MI-B328611	3-12
MI-327773	2-30
ML-330640	2-35
ML-749691	4-22
ML-749693	4-23
MP-604531	2-5
MR-749685	4-20
MR-749686	4-21
MV-322302	3-14
MZ-B321701	3-1
MZ-351099	1-29
MZ-712538	4-18
MZ-749640	4-27
MZ-749692	4-13
MZ-749694	4-14
MZ-749697	4-16
MZ-749698	4-17
MZ-749699	4-25
MZ-749715	4-15
MZ-749853	4-26
MZ-749855	4-24
MZ-749895	4-19
SA-345057	18-9
SA-345059	19-7
SE-353082A	19-9
SE-353082B	19-10
SE-353083A	19-4
SE-353088	19-2
SE-353088F	19-2B
SE-353090	19-3
SK-531235	18-6
SP-343189	18-8
SP-345054D	19-11
SP-345054G	19-11B
SP-349117A	4-29
SP-353341L	19-5EG
SP-353341M	19-5EK
VT-B319445	2-9
VT-B319446	2-15
VT-B322286	2-39
VT-B353093	1-5
VT-V1039A240A	1-7
VT-317947	2-10
VT-322159	2-40
VT-322203	2-63
VT-326470	2-20
VT-326476	3-22
VT-326477	2-60
VT-327212	12-2
VT-328134	2-17
VT-345031	2-59
VT-353098	1-10
VT-749898	3-39
VT-780025	3-36
VT-780026	3-37
VT-780027	3-38
ZG-312922	4-6
ZG-312944	4-8
ZG-312945	2-46
ZG-312997	2-58
ZG-313045	2-32
ZG-313085	3-16
ZG-313212	4-9
ZG-313257	1-25
ZG-316197	3-24
ZG-318043	2-12
ZG-318204	2-41
ZG-321769	3-8
ZG-324331	4-7
ZG-326247	2-56
ZG-327740	1-17
ZG-327757	1-24
ZG-328225	1-22
ZG-328610	3-15
ZG-328659	2-57
ZG-328661	3-21
ZG-328664	2-19
ZG-331178	1-11
ZG-332463	2-34
ZG-332979	1-14
ZG-342091	2-4
ZG-344132	2-45
ZG-349805	2-26
ZG-749695	4-11
ZG-749696	4-12
ZG-749705	4-10
ZG-780032	3-29
ZG-780035	3-32
ZG-780039	3-33
ZG-780040	3-34
ZS-310984	2-21
ZS-313796	18-2x
ZS-318206	1-4
ZS-321783	19-12
ZS-326246	2-53
ZS-328607	2-29
ZS-328608	2-54
ZS-341471	2-11
ZS-354085	1-15
ZS-356815	1-6
ZS-380046	1-23
ZS-447840	19-6
ZS-462802	19-8
ZS-477876	2-6
ZS-609434	2-23
ZS-609434	3-2
ZW-259738	3-17
ZW-270101	3-7
ZW-290283	3-6
ZW-324417	2-49
ZW-344643	2-13
ZW-344643	2-50
ZW-357164	1-16
ZW-357164	2-18
ZW-357164	3-10
ZW-516993	1-13
ZW-516993	2-24
ZW-550642	1-12
ZW-653163	2-36
BV-V1039A080A	1-30

INDEX

RC-T12

PARTS NO.	REF. NO.	PARTS NO.	REF. NO.	PARTS NO.	REF. NO.	PARTS NO.	REF. NO.
AV-352701	1-1	ED-557447	1-D2				
AV-354209	1-1B	ED-710035	1-D3				
AV-713368	1-3	ED-710035	1-D4				
AV-713371	1-3B	ED-780019	1-D5				
AV-713375	1-2B	EI-749983	1-IC1				
AV-749979	1-4	EI-749984	1-X1				
AV-749980	1-5	ET-318604	1-TR1				
AV-749981	1-6						
AX-710025	1-2						
ED-557447	1-D1						

MEMO

AKAI

MODEL VS-12 EG/EK

SECTION 4

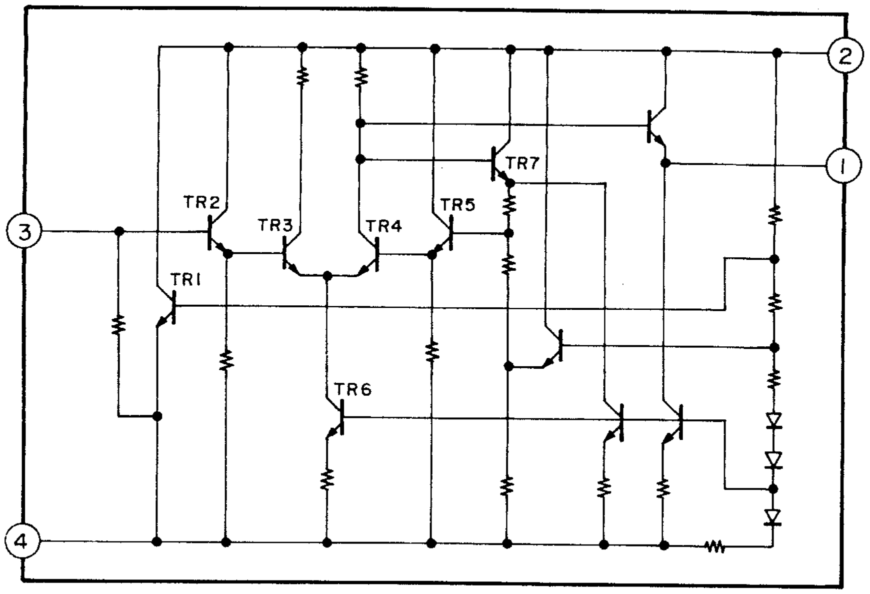
SCHEMATIC DIAGRAM AND PC BOARDS

TABLE OF CONTENTS

1. SCHEMATIC DIAGRAM OF ICs 2
2. POWER & SYSCON BLOCK DIAGRAM 13
3. OPERATION BLOCK DIAGRAM 14
4. MECHA DRIVE BLOCK DIAGRAM 15
5. SERVO BLOCK DIAGRAM 16
6. VIDEO BLOCK DIAGRAM 17
7. HIFI AUDIO BLOCK DIAGRAM 18
8. PRE AMP BLOCK DIAGRAM 19
9. CONNECTION DIAGRAM 20
10. DRIVE, SENSOR AND OTHER PC BOARDS 21
11. POWER & SYSCON SCHEMATIC DIAGRAM 22
12. POWER & SYSCON PC BOARD 23
13. OPERATION SCHEMATIC DIAGRAM 24
14. OPERATION PC BOARD 25
15. MECHA DRIVE SCHEMATIC DIAGRAM 26
16. MECHA DRIVE PC BOARD 27
17. SERVO/CM DRIVE SCHEMATIC DIAGRAM 28
18. SERVO PC BOARD 29
19. PRE AMP SCHEMATIC DIAGRAM 30
20. PRE AMP PC BOARD 31
21. HIFI AUDIO PC BOARD 32
22. HIFI AUDIO SCHEMATIC DIAGRAM 33
23. HIFI AUDIO (2ED) SCHEMATIC DIAGRAM 34
24. HIFI AUDIO PC BOARD 35
25. VIDEO SCHEMATIC DIAGRAM 36
26. VIDEO PC BOARD 37
27. LINEAR AUDIO SCHEMATIC DIAGRAM 38
28. LINEAR AUDIO PC BOARD 39
29. DEMODULATOR SCHEMATIC DIAGRAM (EG) 40
30. DEMODULATOR PC BOARD (EG) 41
31. DEMODULATOR SCHEMATIC DIAGRAM (EK) 42
32. DEMODULATOR PC BOARD (EK) 43
33. BAR METER SCHEMATIC DIAGRAM 44
34. RC-T12 REMOTE CONTROL TRANSMITTER SCHEMATIC DIAGRAM 45
35. REMOTE CONTROL TRANSMITTER PC BOARD 45

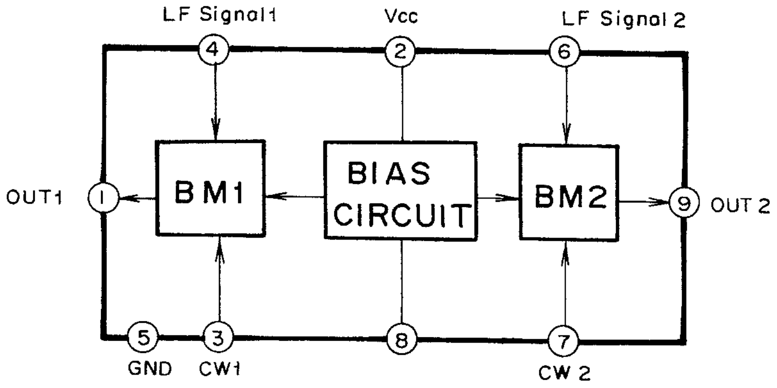
SCHEMATIC DIAGRAM OF ICs

AN608P (Video Amp.)



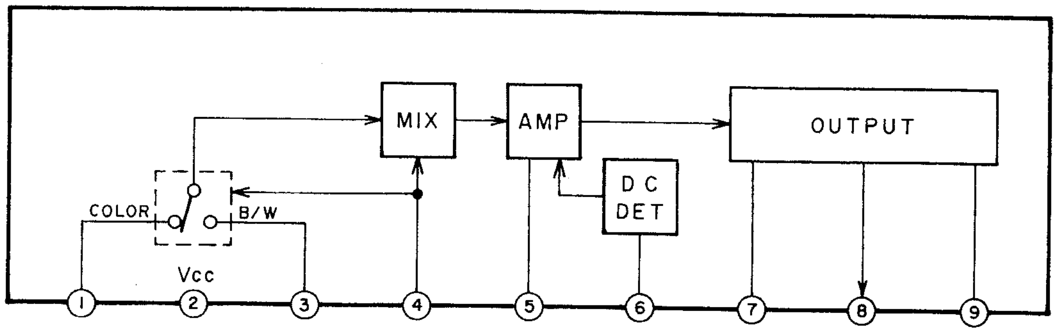
2
1
3
4
TR1
TR2
TR3
TR4
TR5
TR6
TR7

AN6041 (Dual Balanced Modulator)



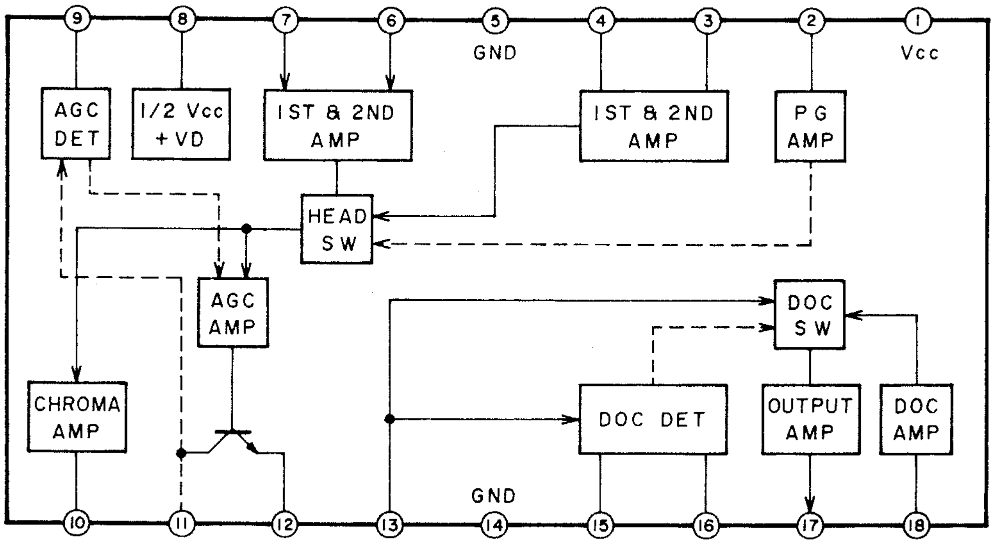
LF Signal1
Vcc
LF Signal 2
4
2
6
OUT1
1
BM1
BIAS CIRCUIT
BM2
9
OUT 2
5
3
8
7
GND
CW1
CW 2

AN6307 (VTR Video Rec Amp)

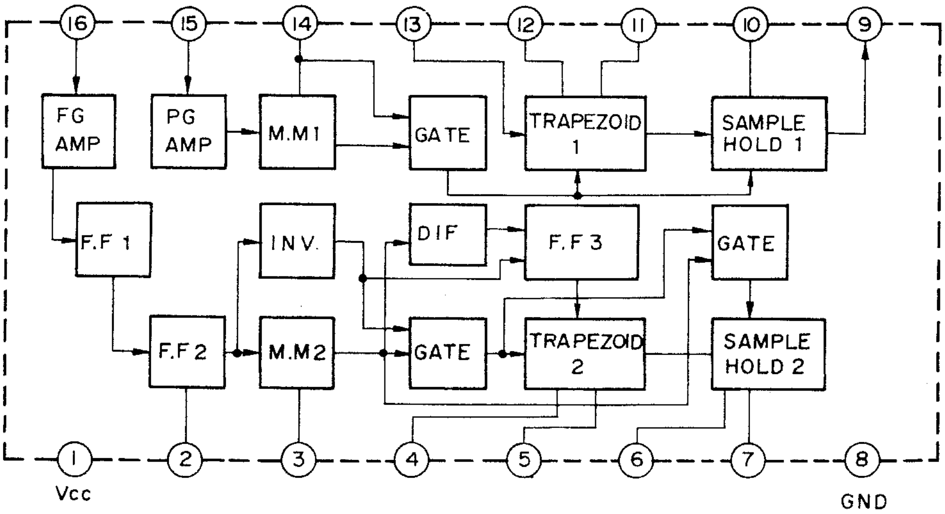


MIX
AMP
OUTPUT
D C DET
COLOR
B/W
Vcc
1
2
3
4
5
6
7
8
9

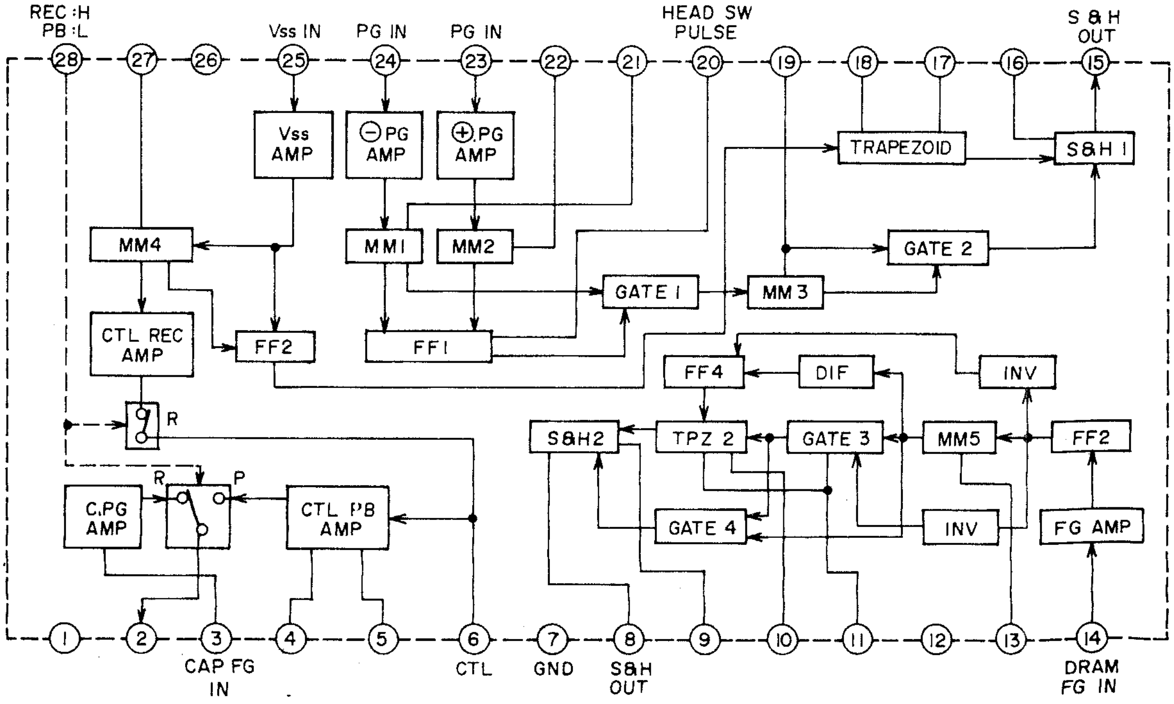
AN6326N (VTR Video Head Amp)


9
8
7
6
5
4
3
2
1
GND
Vcc
AGC DET
1/2 Vcc +VD
1ST & 2ND AMP
1ST & 2ND AMP
PG AMP
HEAD SW
AGC AMP
DOC SW
CHROMA AMP
DOC DET
OUTPUT AMP
DOC AMP
GND
10
11
12
13
14
15
16
17
18

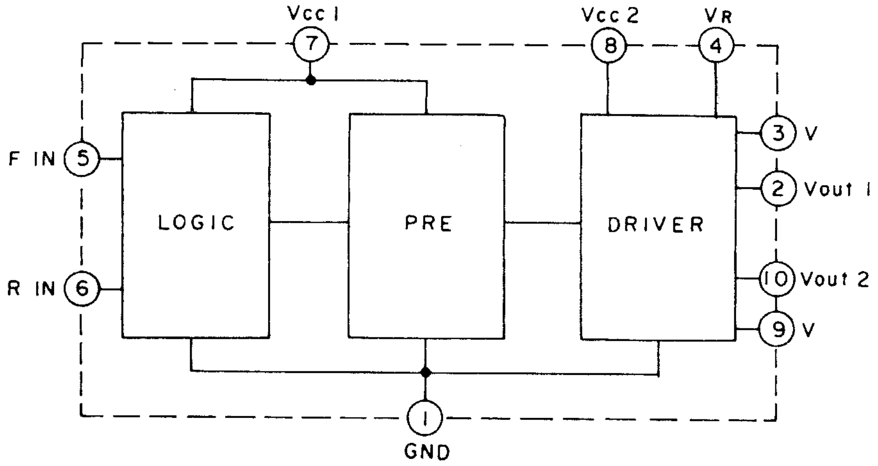
AN6341N (Capstan Servo Control)


16
15
14
13
12
11
10
9
FG AMP
PG AMP
M.M1
GATE
TRAPEZOID 1
SAMPLE HOLD 1
F.F 1
INV.
DIF
F.F 3
GATE
F.F 2
M.M2
GATE
TRAPEZOID 2
SAMPLE HOLD 2
1
2
3
4
5
6
7
8
Vcc
GND

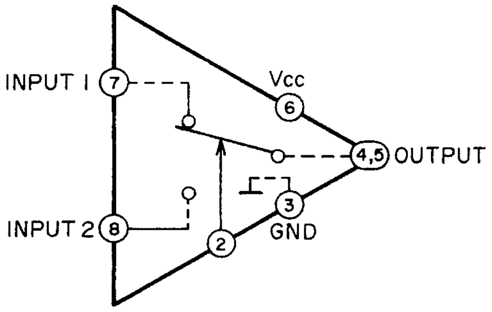
AN6350 (Drum Servo Control)


REC :H PB :L
Vss IN
PG IN
PG IN
HEAD SW PULSE
S & H OUT
28
27
26
25
24
23
22
21
20
19
18
17
16
15
Vss AMP
⊖PG AMP
⊕PG AMP
TRAPEZOID
S&H 1
MM4
MM1
MM2
GATE 2
GATE 1
MM3
CTL REC AMP
FF2
FF1
FF4
DIF
INV
R
S&H2
TPZ 2
GATE 3
MM5
FF2
R
P
C.PG AMP
CTL PB AMP
GATE 4
INV
FG AMP
1
2
3
4
5
6
7
8
9
10
11
12
13
14
CAP FG IN
CTL
GND
S&H OUT
DRAM FG IN

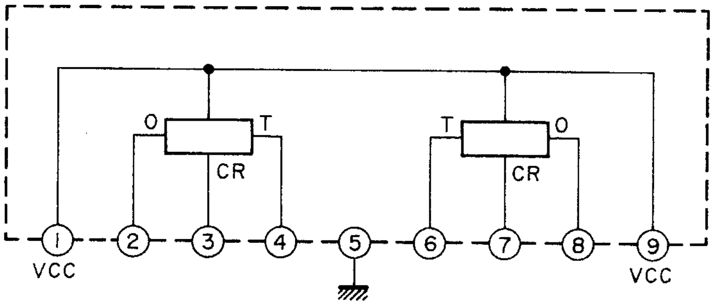
BA6109/BA6209 (NOR/REV Controlable Motor Power Driver)


Vcc I
7
Vcc 2
8
VR
4
F IN 5
R IN 6
LOGIC
PRE
DRIVER
3 V
2 Vout I
10 Vout 2
9 V
1
GND

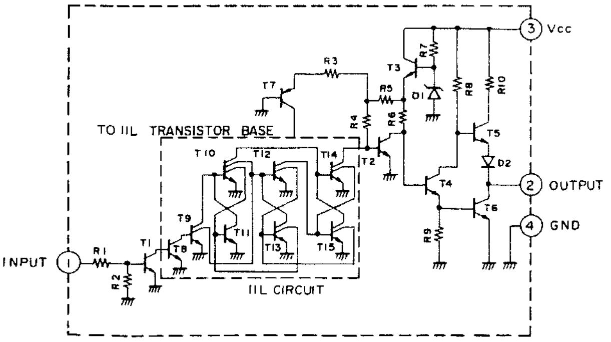
BA7001 (Video Signal Switcher)


INPUT I 7
Vcc
6
4,5 OUTPUT
3
GND
INPUT 2 8
2

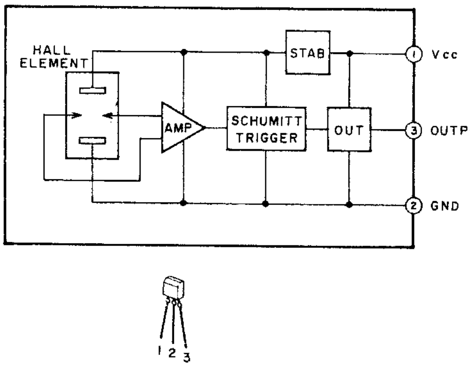
BA236 (Dual Monomulti)


O
T
CR
T
O
CR
1
2
3
4
5
6
7
8
9
VCC
VCC

DN819 (T Flip-Flop)

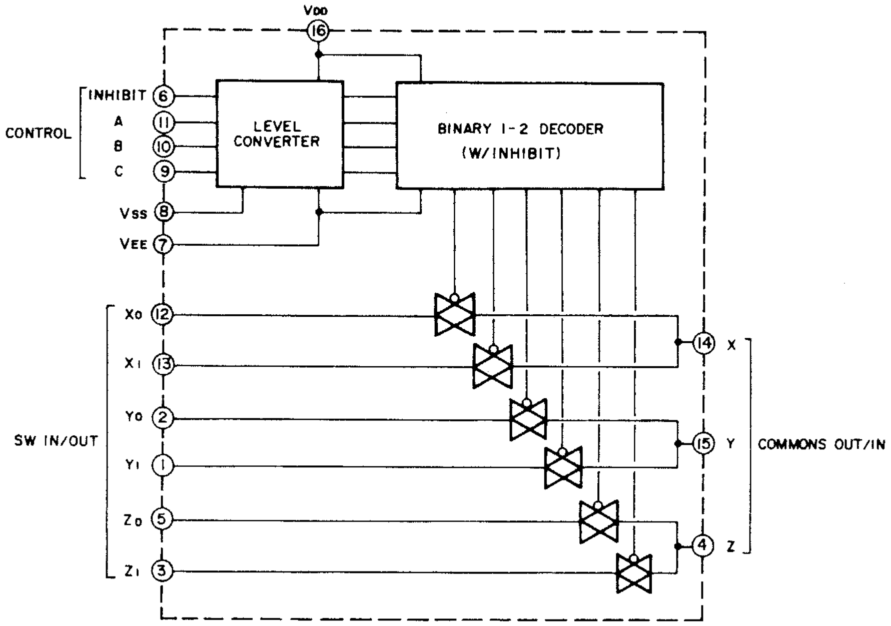

3 Vcc
R3
T7
T3
R7
R5
D1
R8
R10
R4
R6
TO IIL TRANSISTOR BASE
T10
T12
T14
T2
T5
D2
T4
2 OUTPUT
T6
4 GND
T9
T11
R9
INPUT 1
R1
T1
T8
T13
T15
R2
IIL CIRCUIT

DN6838 (Hall IC)


HALL
ELEMENT
STAB
1 Vcc
AMP
SCHUMITT
TRIGGER
OUT
3 OUTPUT
2 GND
1 2 3

1 Vcc
2 GND
3 OUTPUT

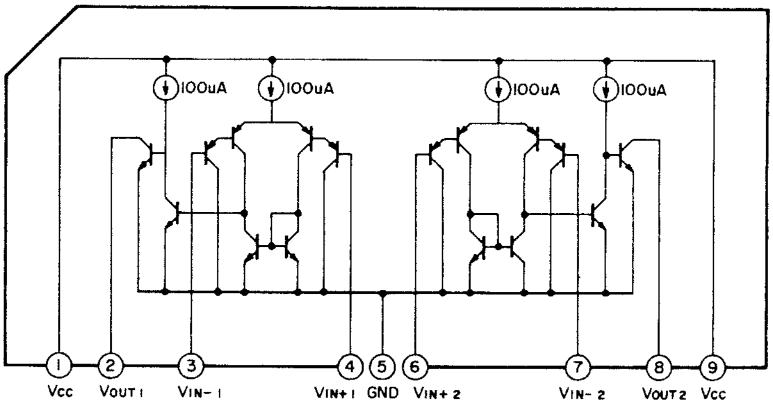
HD14053BP/MC14053BCP/BU4053B (Triple-2 Channel Multiplexer/Demultiplexer)


VDD
16
INHIBIT 6
A 11
B 10
C 9
CONTROL
LEVEL CONVERTER
BINARY 1-2 DECODER (W/INHIBIT)
Vss 8
VEE 7
X0 12
X1 13
Y0 2
Y1 1
Z0 5
Z1 3
SW IN/OUT
14 X
15 Y
4 Z
COMMONS OUT/IN

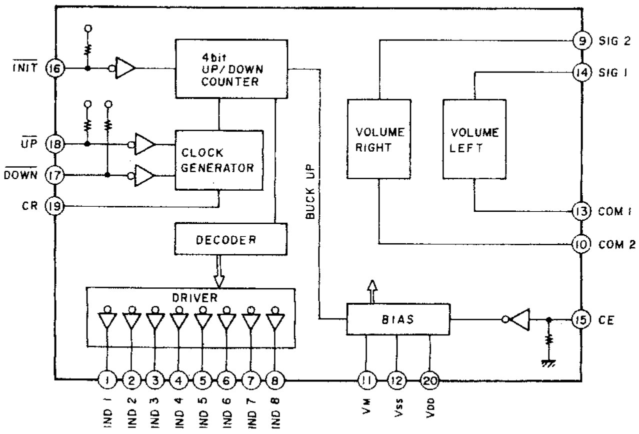
TRUTH TABLE

INHIBIT	A or B or C	"ON" CHANNEL
0	0	X_0 or Y_0 or Z_0
0	1	X_1 or Y_1 or Z_1

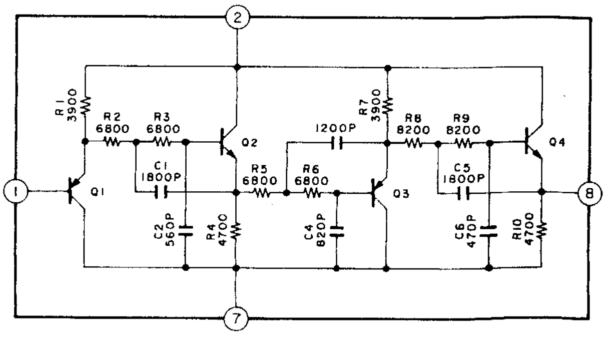
LA6393S (Dual Operational Amp)


100uA
100uA
100uA
100uA
1 Vcc
2 VOUT1
3 VIN-1
4 VIN+1
5 GND
6 VIN+2
7 VIN-2
8 VOUT2
9 Vcc

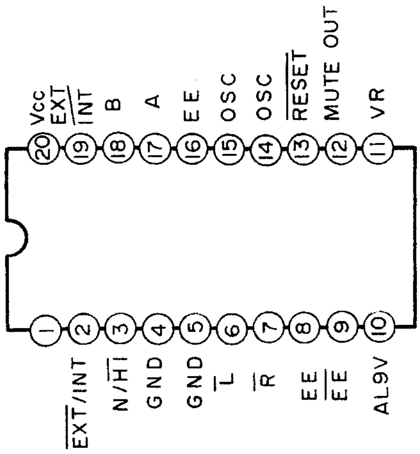
LC7530 (Electronic Volume)


INIT 16
UP 18
DOWN 17
CR 19
4bit UP/DOWN COUNTER
CLOCK GENERATOR
DECODER
DRIVER
BUCK UP
VOLUME RIGHT
VOLUME LEFT
BIAS
9 SIG 2
14 SIG 1
13 COM 1
10 COM 2
15 CE
1 IND 1
2 IND 2
3 IND 3
4 IND 4
5 IND 5
6 IND 6
7 IND 7
8 IND 8
11 VM
12 Vss
20 VDD

LF1803 (3 Stage Active LPF)

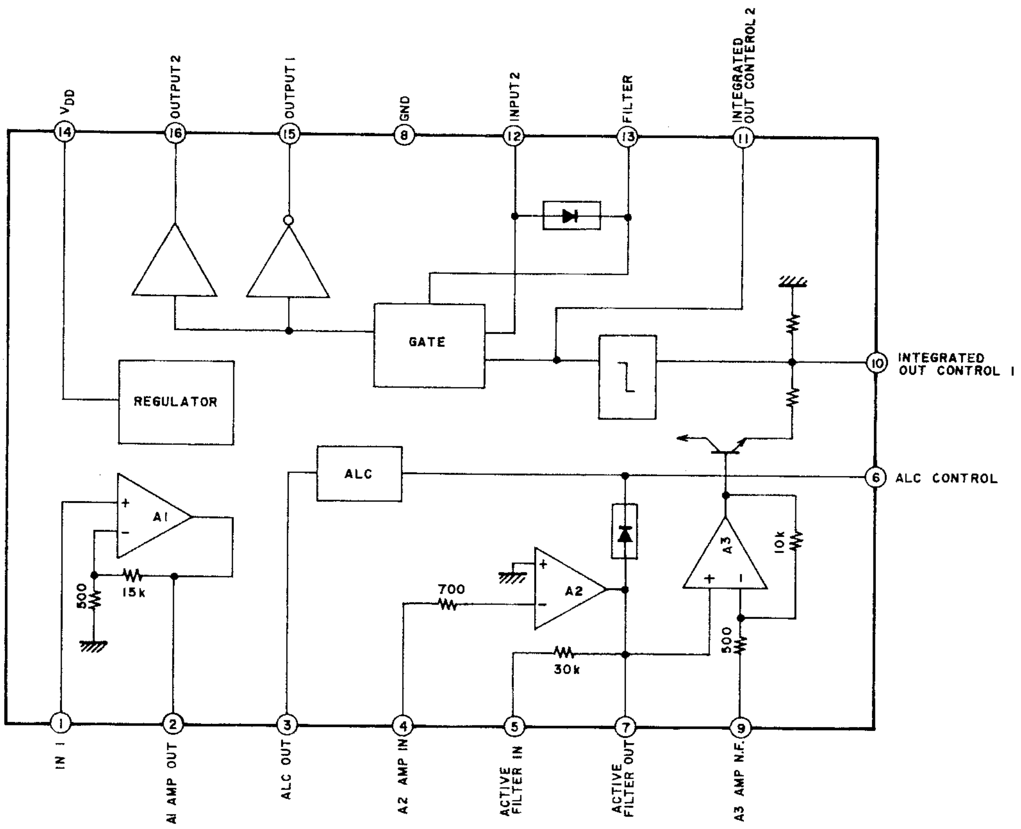

2
1
8
7
R1 3900
R2 6800
R3 6800
C1 1800P
C2 560P
R4 4700
Q1
Q2
R5 6800
R6 6800
1200P
C4 820P
R7 3900
Q3
R8 8200
R9 8200
C5 1800P
C6 470P
R10 4700
Q4

Q1,3 : 2SA1163 or 2SA1179
Q2,4 : 2SC2713 or 2SC2812

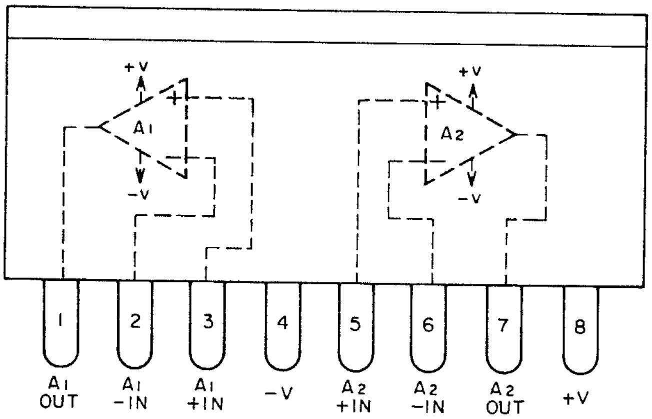

Vcc
$\overline{EXT}$\INT
INT
B
A
EE
OSC
OSC
$\overline{RESET}$
MUTE OUT
VR
20
19
18
17
16
15
14
13
12
11
1
2
3
4
5
6
7
8
9
10
$\overline{EXT}$/INT
N/$\overline{HI}$
GND
GND
$\overline{L}$
$\overline{R}$
EE
$\overline{EE}$
AL9V

<table>
<tr><th>Pin No.</th><th>Symbol</th><th>Description</th></tr>
<tr><td>1</td><td>AUTO/MANU</td><td>Not used and connected to ground.</td></tr>
<tr><td>2</td><td>$\overline{EXT}$/INT</td><td>External/Internal (Tuner, S.C.) Video Input LED drive output, "L" at External, "H" at Internal.</td></tr>
<tr><td>3</td><td>$\overline{Hi-Fi}$/NOR</td><td>Hi-Fi/Normal LED drive output, "L" at Hi-Fi, "H" at Normal</td></tr>
<tr><td>4</td><td>CN Vss</td><td>Connect to ground.</td></tr>
<tr><td>5</td><td>Vss</td><td>Connect to ground.</td></tr>
<tr><td>6
7</td><td>$\overline{L}$
$\overline{R}$</td><td>Audio channel selection output
<table>
<tr><td>MODE</td><td>NORMAL</td><td>L</td><td>L+R</td><td>R</td></tr>
<tr><td>L</td><td>H</td><td>L</td><td>L</td><td>H</td></tr>
<tr><td>R</td><td>H</td><td>L</td><td>L</td><td>L</td></tr>
</table></td></tr>
<tr><td>8</td><td>EE D</td><td>$\overline{A-PB}$ (= EE) 100 msec delayed output, "L" is output 100 msec later when the mode is changed from EE to PB.</td></tr>
<tr><td>9</td><td>$\overline{EE}$ D</td><td>A – PB (= $\overline{EE}$) 100 msec delayed output, "L" is output 100 msec later when the mode is changed from EE to PB.</td></tr>
<tr><td>10</td><td>AL9V</td><td>AL9V input, mute is on after 2 sec from this input when Function SW is turned on.</td></tr>
<tr><td>11</td><td>VR</td><td>Electronic Volume Center Set output, "L" at Internal mode, "L" for 500 msec at External FUNCTION ON mode.</td></tr>
<tr><td>12</td><td>MUTE OUT</td><td>Mute drive output, Mute at "H".</td></tr>
<tr><td>13</td><td>$\overline{RESET}$</td><td>Reset terminal, Power on reset at "L".</td></tr>
<tr><td>14
15</td><td>X out
X in</td><td>Oscillator terminal (300 kHz is oscillated when a resistor 120k ohms is connected)</td></tr>
<tr><td>16</td><td>EE</td><td>EE (= $\overline{A-PB}$) input, Audio PB at "L", EE at "H".</td></tr>
<tr><td>17
18</td><td>A
B</td><td>Audio channel selection input
<table>
<tr><td>MODE</td><td>NORMAL</td><td>L</td><td>L+R</td><td>R</td></tr>
<tr><td>A</td><td>H</td><td>L</td><td>L</td><td>H</td></tr>
<tr><td>B</td><td>H</td><td>H</td><td>L</td><td>L</td></tr>
</table></td></tr>
<tr><td>19</td><td>EXT/INT</td><td>External/Internal (Tuner, S.C.) Video Input selection input, "L" at External, "H" at Internal.</td></tr>
<tr><td>20</td><td>VDD</td><td>Power supply terminal (+5V)</td></tr>
</table>

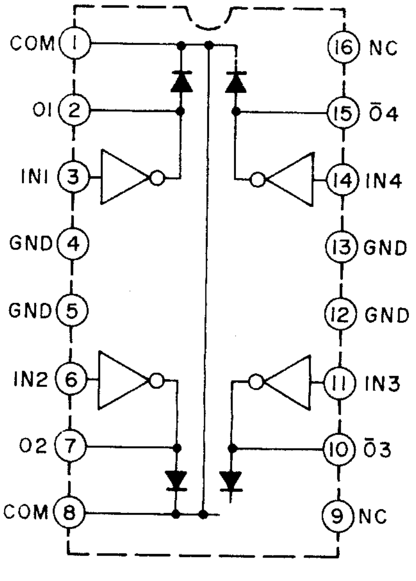
M51014L

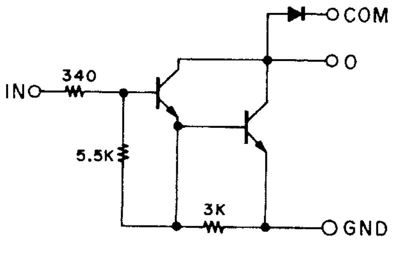

VDD
OUTPUT 2
OUTPUT 1
GND
INPUT 2
FILTER
INTEGRATED OUT CONTEROL 2
14
16
15
8
12
13
11
GATE
REGULATOR
ALC
A1
A2
A3
500
15k
700
30k
10k
500
INTEGRATED OUT CONTROL 1
10
ALC CONTROL
6
1
2
3
4
5
7
9
IN 1
A1 AMP OUT
ALC OUT
A2 AMP IN
ACTIVE FILTER IN
ACTIVE FILTER OUT
A3 AMP N.F.

M5218LO (Dual Operational Amp)


+V
A1
-V
+V
A2
-V
1
2
3
4
5
6
7
8
A1 OUT
A1 -IN
A1 +IN
-V
A2 +IN
A2 -IN
A2 OUT
+V

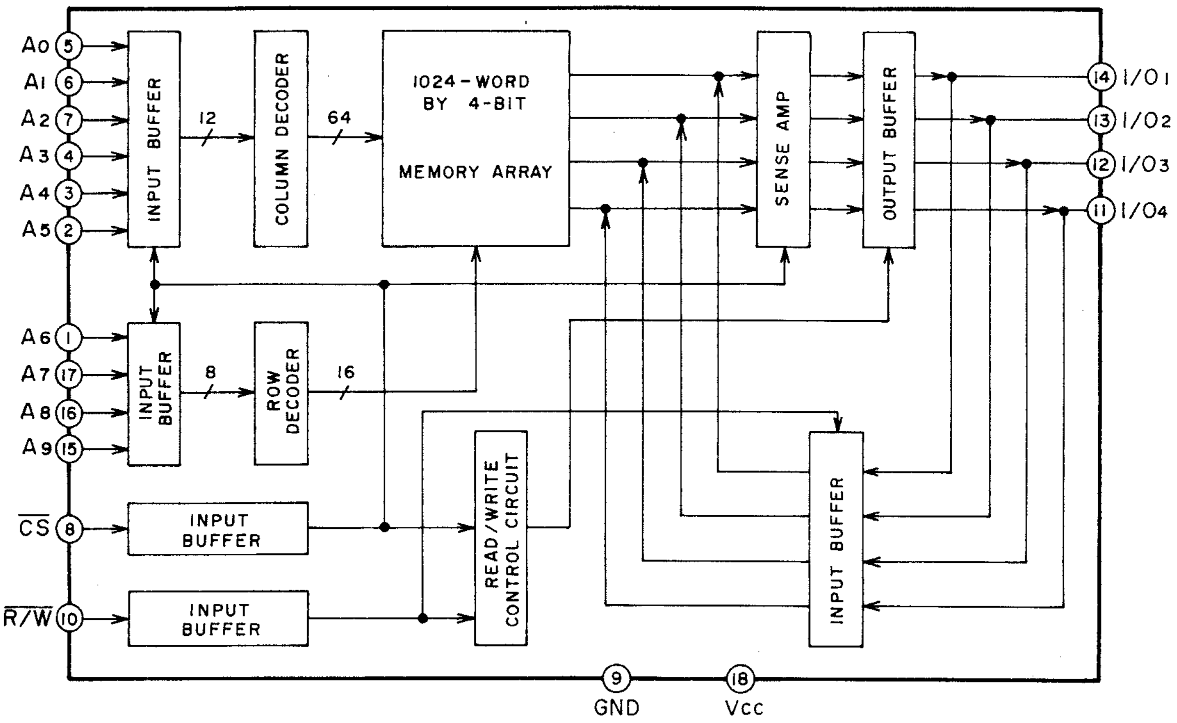
M54514AP (7-Unit TR Array)


COM 1
O1 2
IN1 3
GND 4
GND 5
IN2 6
O2 7
COM 8
16 NC
15 Ō4
14 IN4
13 GND
12 GND
11 IN3
10 Ō3
9 NC

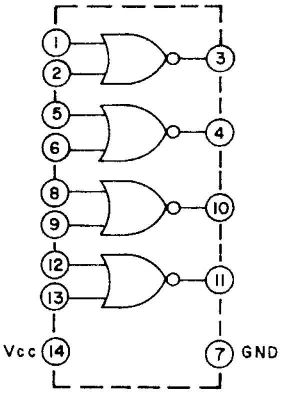

COM
O
IN
340
5.5K
3K
GND

ALL GND CONNECTED IN INSIDE

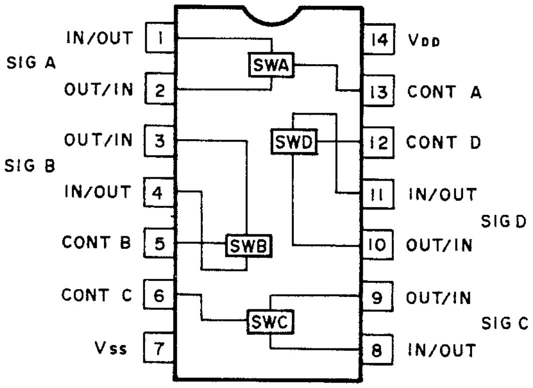
M58981P-45 (4K CMOS Static RAM)


A0 5
A1 6
A2 7
A3 4
A4 3
A5 2
INPUT BUFFER
12
COLUMN DECODER
64
1024-WORD BY 4-BIT MEMORY ARRAY
SENSE AMP
OUTPUT BUFFER
14 I/O1
13 I/O2
12 I/O3
11 I/O4
A6 1
A7 17
A8 16
A9 15
INPUT BUFFER
8
ROW DECODER
16
$\overline{CS}$ 8
INPUT BUFFER
$\overline{R/W}$ 10
INPUT BUFFER
READ/WRITE CONTROL CIRCUIT
INPUT BUFFER
9 GND
18 Vcc

MC14001 (Quadruple 2-Input NOR Gate)

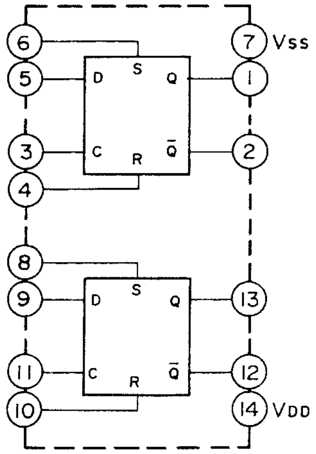

1
2
3
5
6
4
8
9
10
12
13
11
Vcc 14
7 GND

MC14066B (Quad Bilateral SW)


IN/OUT 1
SIG A
OUT/IN 2
OUT/IN 3
SIG B
IN/OUT 4
CONT B 5
CONT C 6
Vss 7
14 VDD
13 CONT A
12 CONT D
11 IN/OUT
SIG D
10 OUT/IN
9 OUT/IN
SIG C
8 IN/OUT
SWA
SWB
SWC
SWD

CONTROL "H" → SW "ON"

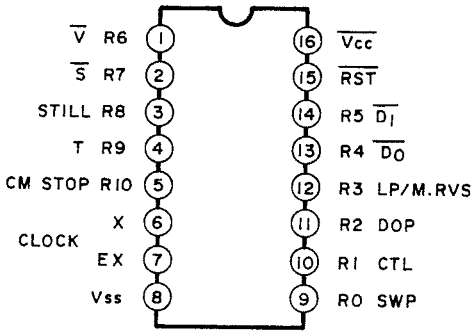
MC14013BCP (Dual D Flip-Flop)


6
5
3
4
7 Vss
1
2
D
S
Q
C
R
$\overline{Q}$
8
9
11
10
13
12
14 VDD
D
S
Q
C
R
$\overline{Q}$

TRUTH TABLE

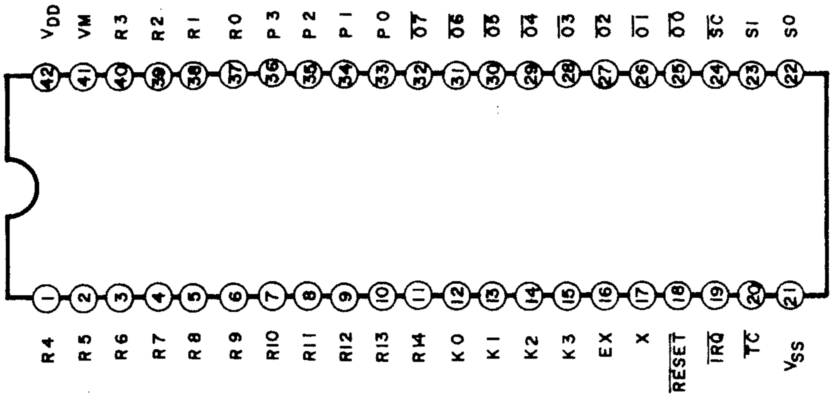
INPUTS				OUTPUTS		
CLOCK↑	DATA	RESET	SET	Q	$\overline{Q}$	
↑	0	0	0	0	1	
↑	1	0	0	1	0	
↓	X	0	0	Q	$\overline{Q}$	NO CHANGE
X	X	1	0	0	1	
X	X	0	1	1	0	
X	X	1	1	1	1	

X : DON'T CARE
↑ : LEVEL CHANGE


$\overline{V}$ R6
$\overline{S}$ R7
STILL R8
T R9
CM STOP R10
X
CLOCK
EX
Vss
1
2
3
4
5
6
7
8
16
15
14
13
12
11
10
9
$\overline{Vcc}$
$\overline{RST}$
R5 $\overline{D_I}$
R4 $\overline{D_O}$
R3 LP/M.RVS
R2 DOP
R1 CTL
R0 SWP

Pin No.	IN/OUT	Symbol	Description
1	OUT	$\overline{V}$	Voltage apply to Capstan Motor.
2	OUT	$\overline{S}$	STILL or NORMAL.
3	IN	STILL	STILL Pulse from Syscon Mi-Com IC8 (MB88501-158M).
4	IN	T	Coincide the timing with after shaping the Drum FG waveform.
5	IN	OM STOP	At "H" Capstan Motor STOP. At "L" Capstan Motor MOVE.
6		X	Clock
7		EX	Clock
8		VSS	Ground
9	IN	SWP	Switching Pulse from Servo.
10	IN	CTL	CTL Pulse from Servo.
11	IN	DOP	DOP Pulse from Pre-Amp.
12	IN	LP/M RVS	Motor Reverse Control Line. FWD mode M RVS : L REV mode M RVS : H In case of STILL mode, this line change to LP control Line. LP mode : H SP mode : L
13	OUT	$\overline{D0}$	Capstan Motor Control Out. "H" REV RUN "L" FWD RUN, STOP
14	OUT	$\overline{D1}$	Capstan Motor Control Out. "H" FWD RUN, STOP "L" REV RUN
15		$\overline{\text{RESET}}$	At "H" level, Reset is removed.
16		VCC	Power input (+5V).

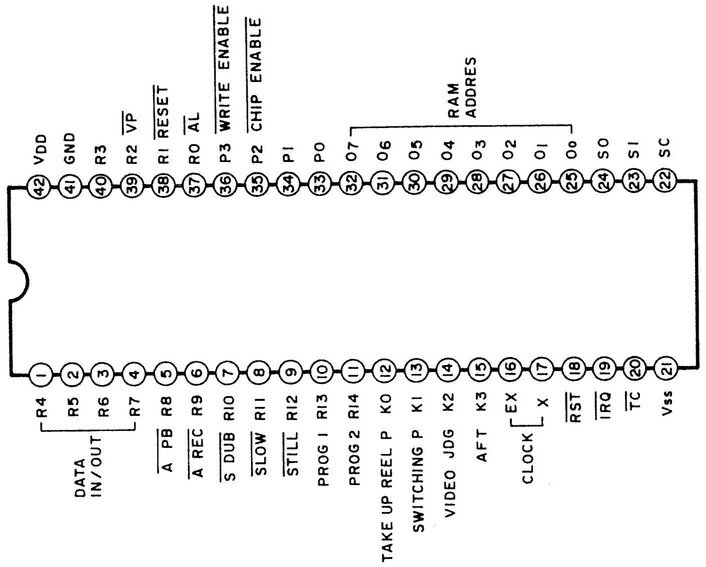
MB88401-233K (4 bit one-tip Microcomputer)


VDD
VM
R3
R2
R1
R0
P3
P2
P1
P0
O7
O6
O5
O4
O3
O2
O1
O0
SC
SI
SO
42
41
40
39
38
37
36
35
34
33
32
31
30
29
28
27
26
25
24
23
22
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
R14
K0
K1
K2
K3
EX
X
RESET
IRQ
TC
VSS

BAND SELECTION

Pin No.	Symbol	Description
1 to 8	R4 to R11	Output terminals for both Key Matrix scan and Address & Charactor Data
9	R12	E0 input (not used)
10	R13	EK input (not used)
11	R14	Connected to ground for VS-3 models.
12 to 15	K0 to K3	Key Matrix Data input
16 17	EX X	} Clock Oscillator terminals
18	$\overline{\text{RESET}}$	RESET signal input from SYSCON MI-COM IC5 (MB88401/206M)
19	$\overline{\text{iRQ}}$	REMOCON signal data input
20	$\overline{\text{TC}}$	Not used.
21	Vss	Connect to ground
22 23 24	SO SI $\overline{\text{SC}}$	Serial Data output Serial Data input Serial Clock input } Data exchange between SYSCON MI-COM IC5 (MB88501/147M)
25 to 32	$\overline{\text{O0}}$ to $\overline{\text{O7}}$	Mode Indicator LEDs (D12 to D19) drive output, lit at "L"
33 to 36	P0 to P3	LED drive voltage output, drive 3 systems of LEDs by 2 msec interval.
37	R0	Not used.
38	R1	$\overline{\text{VIDEO}}$/TV selection output
39 40	R2 R3	} CRT Controller IC (IC2 MB88303M) Control signal output
41	VM	Voltage for memory, connected to +5V
42	VDD	Power supply terminal (+5V)

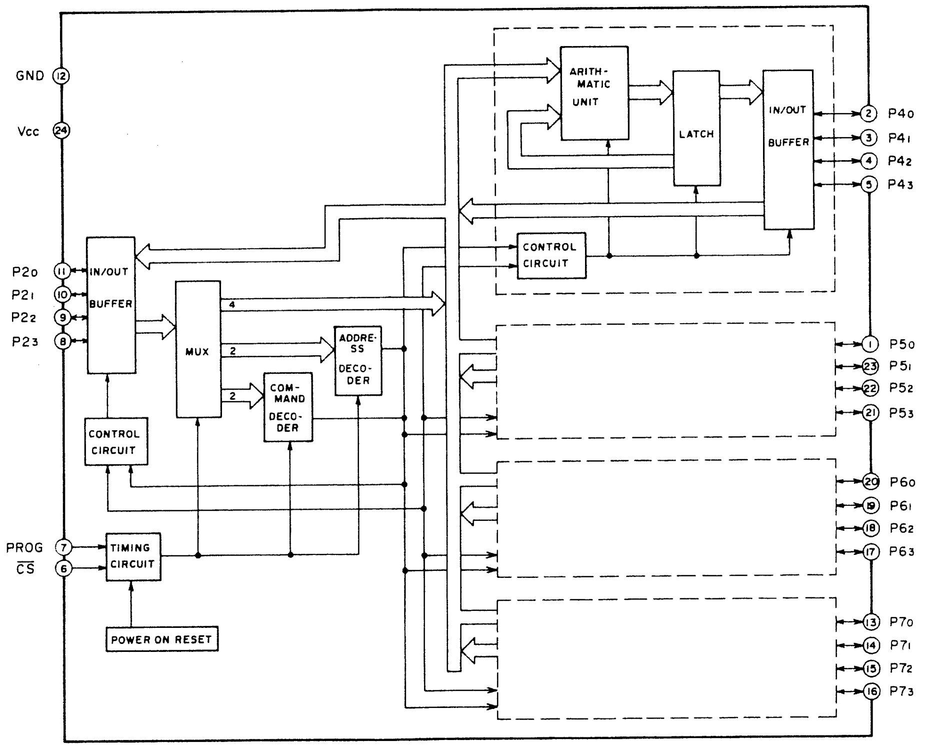
MB88501-147M


VDD
GND
R3
R2 $\overline{\text{VP}}$
R1 $\overline{\text{RESET}}$
R0 $\overline{\text{AL}}$
P3 $\overline{\text{WRITE ENABLE}}$
P2 $\overline{\text{CHIP ENABLE}}$
P1
P0
07
06
05
04
03
02
01
00
RAM ADDRES
S0
S1
SC
R4
R5
R6
R7
DATA IN/OUT
R8 $\overline{\text{A PB}}$
R9 $\overline{\text{A REC}}$
R10 $\overline{\text{S DUB}}$
R11 $\overline{\text{SLOW}}$
R12 $\overline{\text{STILL}}$
R13 PROG 1
R14 PROG 2
K0 TAKE UP REEL P
K1 SWITCHING P
K2 VIDEO JDG
K3 AFT
EX
X
CLOCK
$\overline{\text{RST}}$
$\overline{\text{IRQ}}$
$\overline{\text{TC}}$
Vss
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42

Pin No.	Symbol	Description
1 to 4	DATA I/O	DATA output to DAC IC9 (MB88301) EXPANDER IC6 (MBL8243M) and RAM IC10 (M58981).
5 6 7	$\overline{\text{AUDIO PB}}$ $\overline{\text{AUDIO REC}}$ $\overline{\text{SOUND DUB}}$	These are control signal output terminals which control AUDIO PB, AUDIO REC and SOUND DUB.
8	$\overline{\text{SLOW}}$	1/2 SLOW at "L"
9	$\overline{\text{STILL}}$	32 ms Trigger Pulse at "L" level for STILL.
10	PROG 1	This terminal is used for data transfer between the terminal ⑦ of IC1 (MBL8243M) of Mecha Drive P.CB.
11	PROG2	This terminal is used for data transfer between the terminal ⑦ of IC6 (MBL8243M) of Power Supply & Syscon P.CB.
12 13	TRP SWP	These terminals are used for controlling. Tape Counter, Reel Stop and the judgements of Drum Motor Stop by means of inputting TAKE-UP Reel Pulse and Switching Pulse.
14 15	VIDEO J AFT	These are used for controlling. "H" levels is input when VIDEO signal is in normal, "L" level in abnormal.
16	EX	Clock oscillator terminal.
17	X	Clock oscillator terminal.
18	$\overline{\text{RESET}}$	Not used. (Power "ON" Auto reset)
19	$\overline{\text{IRQ}}$	For trigger input to make a dummy V-Sync at TRICK Mode.
20	$\overline{\text{TC}}$ ($\overline{\text{POWER DOWN}}$)	When the power down detector detects a power down, it turns to "L" level and saves the data in the RAM. After that, "L" level outputs at pin ⑩ save end and a Reset function.
21	Vss	Ground.
22 23 24	SCLK SI SO	Serial Clock Serial Data IN/OUT Serial Data OUT/IN } Data exchange between the terminals of IC3 (MB88401) of Operation P.CB.
25 to 32	ADDRESS	These are terminals for address outputs of EXTERNAL RAM IC10 (M58981) of Power Supply & Syscon P.CB.
33 34	PAG1 PAG0	These are terminals for page outputs of EXTERNAL RAM IC10 (M58981) of Power Supply & Syscon P.CB.

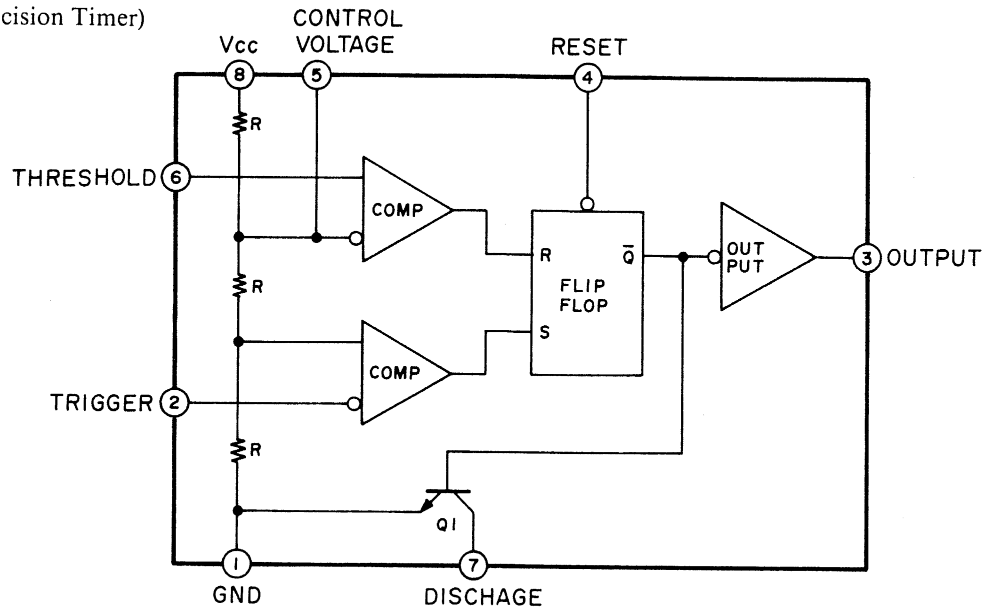
Pin No.	Symbol	Description
35 36	$\overline{\text{CHIP ENABLE}}$ $\overline{\text{WRITE ENABLE}}$	These are terminals for Read and Write control outputs of EXTERNAL RAM IC10 (M58981) of Power Supply & Syscon P.CB.
37	$\overline{\text{AL}}$	AL Power ON at "L" level.
38	$\overline{\text{RESET}}$	This terminal is Reset for IC3 (MB88401) Operation P.CB.
39	$\overline{\text{VP}}$	This terminal outputs a quasi V-sync at Tric Mode.
40	LD1	This terminal outputs the address of DAC IV9 (M38830A) and the data of out-read/out-control signals.
41	START	Connect to Ground.
42	VDD	Power Supply terminal (+5V).

MBL8243M (I/O EXPANDER)

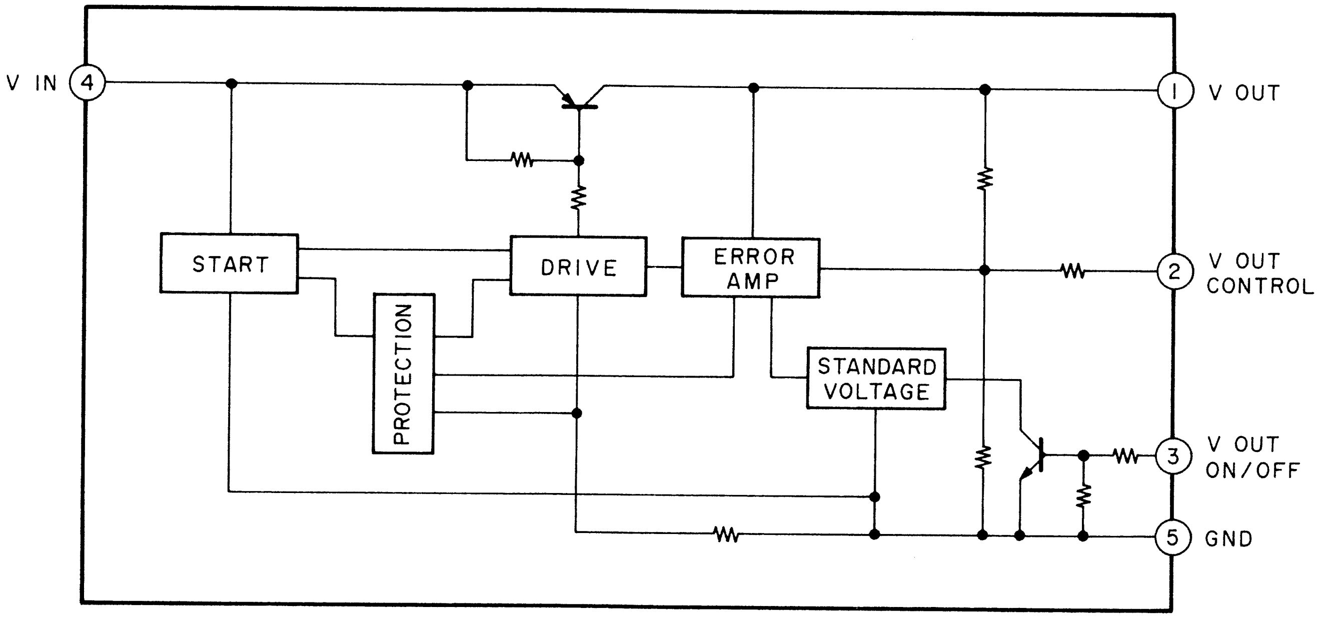

GND ⑫
Vcc ㉔
P20 ⑪
P21 ⑩
P22 ⑨
P23 ⑧
PROG ⑦
$\overline{\text{CS}}$ ⑥
IN/OUT BUFFER
MUX
4
2
2
ADDRESS DECODER
COMMAND DECODER
CONTROL CIRCUIT
TIMING CIRCUIT
POWER ON RESET
ARITHMATIC UNIT
LATCH
IN/OUT BUFFER
CONTROL CIRCUIT
② P40
③ P41
④ P42
⑤ P43
① P50
㉓ P51
㉒ P52
㉑ P53
⑳ P60
⑲ P61
⑱ P62
⑰ P63
⑬ P70
⑭ P71
⑮ P72
⑯ P73

INPUT			OUTPUT		
PIN	SYMBOL	INPUT ITEM	PIN	SYMBOL	OUTPUT FOR
1	RS SW	REC Safety SW H: REC L: not REC	13 14	$\overline{\text{CUE}}$ $\overline{\text{REVW}}$	CUE $\overline{\text{ON}}$/OFF REVIEW $\overline{\text{ON}}$/OFF
2 3	LSW-A2 LSW-B1	} Loading Position Detection SW	15 16	SP/$\overline{\text{LP}}$ CM STP	Not used Capstan Motor STOP
4	$\overline{\text{SS}}$	Tape Start Sensor	17	$\overline{\text{PL-ON}}$	Plunger $\overline{\text{ON}}$/OFF
5	$\overline{\text{ES}}$	Tape End Sensor	18	LM STP	Loading Motor OFF
7	PRG2	8 IN/OUT Control Signal	19	EM STP	Eject Motor STOP
21	CSW3	Ejector Set SW	20	M. $\overline{\text{RVS}}$	All Motor Reverse
22	CSW2	Ejector SW			
23	CSW1	Cassette SW			
8 9 10 11	DATA 1 DATA 2 DATA 3 DATA 4	} DATA IN/OUT			

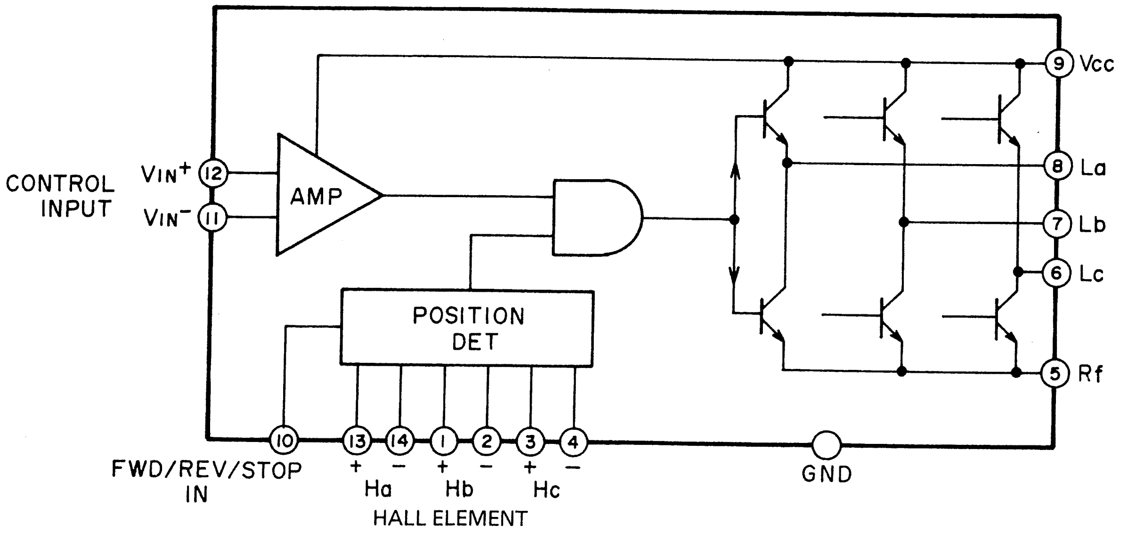
NE555P (Precision Timer)


Vcc
CONTROL VOLTAGE
RESET
THRESHOLD
TRIGGER
COMP
COMP
R
S
Q̄
FLIP FLOP
OUT PUT
OUTPUT
R
R
R
Q1
GND
DISCHAGE
8
5
4
6
2
3
1
7

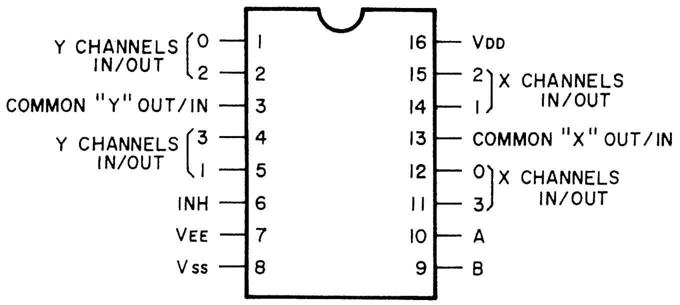
STR9012 (REGULATOR)


V IN
4
V OUT
1
START
DRIVE
ERROR AMP
PROTECTION
STANDARD VOLTAGE
V OUT CONTROL
2
V OUT ON/OFF
3
GND
5

TA7245P

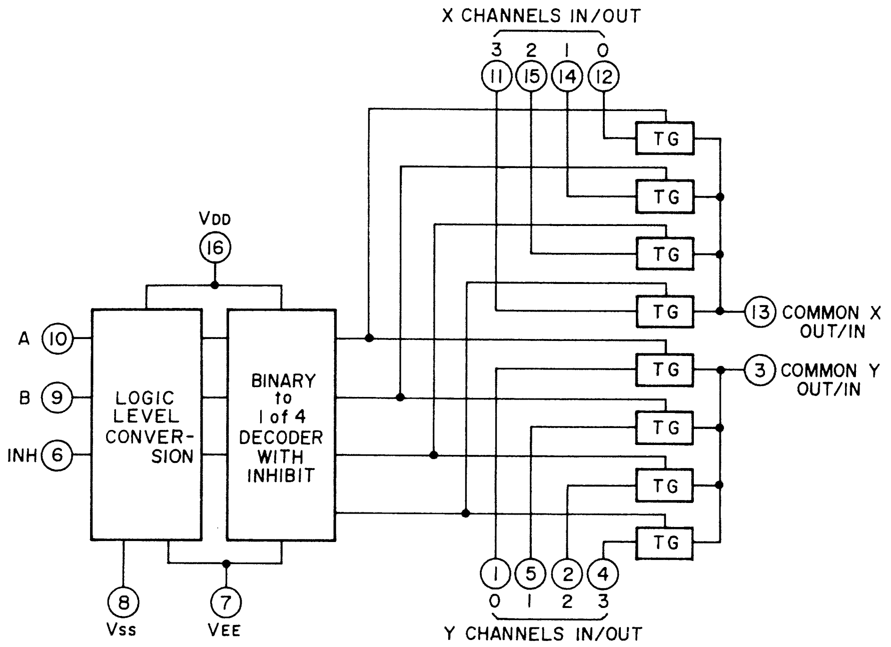

CONTROL INPUT
VIN+
VIN−
12
11
AMP
POSITION DET
9
Vcc
8
La
7
Lb
6
Lc
5
Rf
FWD/REV/STOP IN
10
13
14
1
2
3
4
+ − + − + −
Ha
Hb
Hc
HALL ELEMENT
GND

TC4052BP (ANALOG MULTIPLEXERS/DEMULTIPLEXERS)

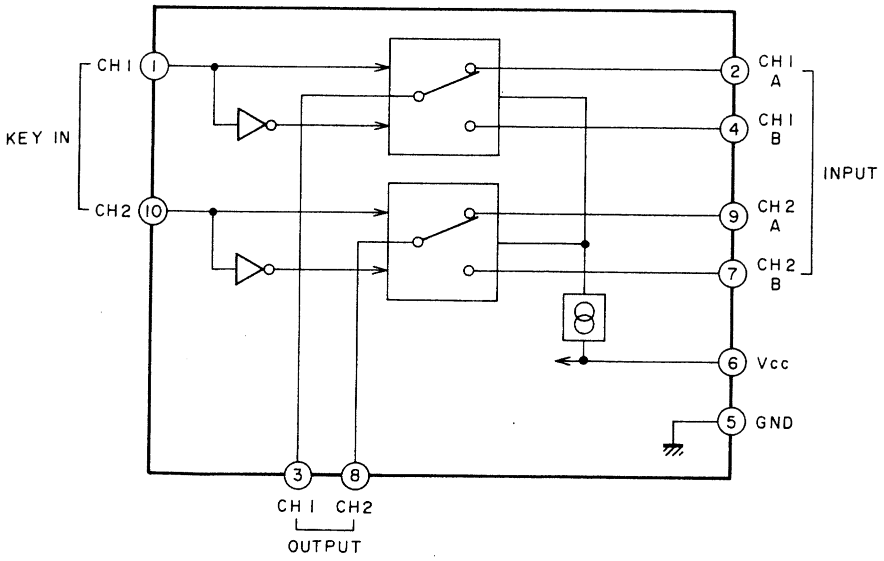

Y CHANNELS IN/OUT
0
2
1
2
COMMON "Y" OUT/IN
3
Y CHANNELS IN/OUT
3
4
1
5
INH
6
VEE
7
Vss
8
16
VDD
15
2
X CHANNELS IN/OUT
14
1
13
COMMON "X" OUT/IN
12
0
X CHANNELS IN/OUT
11
3
10
A
9
B

INHIBIT ⑥	A ⑩	B ⑨	"ON" CHANNEL
L	L	L	0X, 0Y
L	H	L	1X, 1Y
L	L	H	2X, 2Y
L	H	H	3X, 3Y
H	X	X	NONE

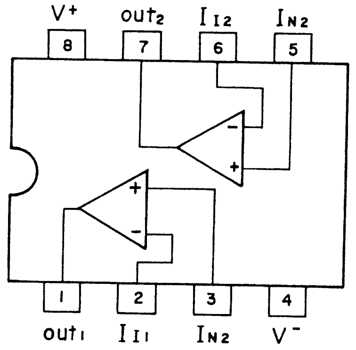
X=DON'T CARE

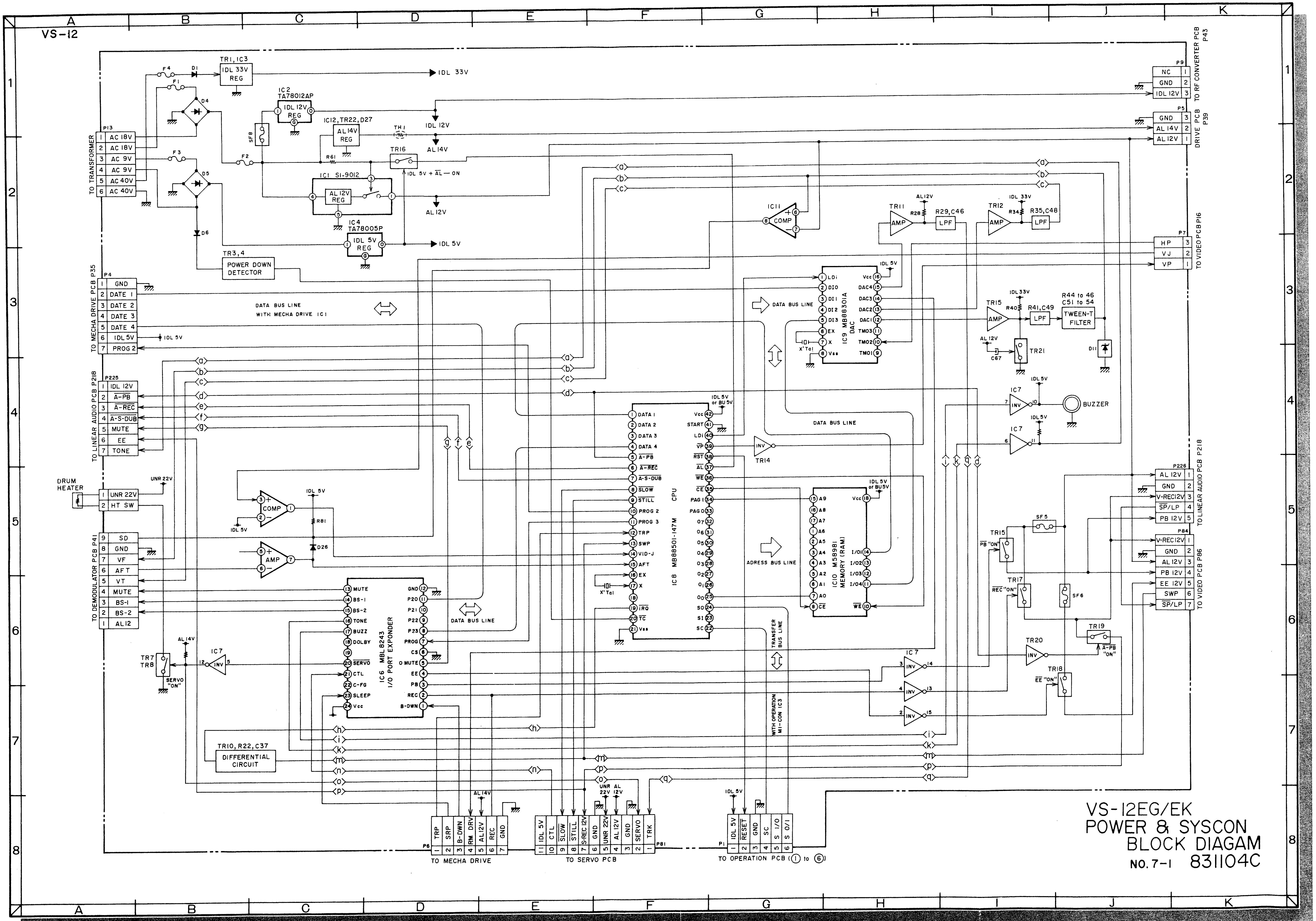

X CHANNELS IN/OUT
3 2 1 0
11
15
14
12
VDD
16
A
10
B
9
INH
6
LOGIC LEVEL CONVERSION
BINARY to 1 of 4 DECODER WITH INHIBIT
TG
13
COMMON X OUT/IN
3
COMMON Y OUT/IN
8
Vss
7
VEE
1
5
2
4
0 1 2 3
Y CHANNELS IN/OUT

TK15021 (ANALOG SW)

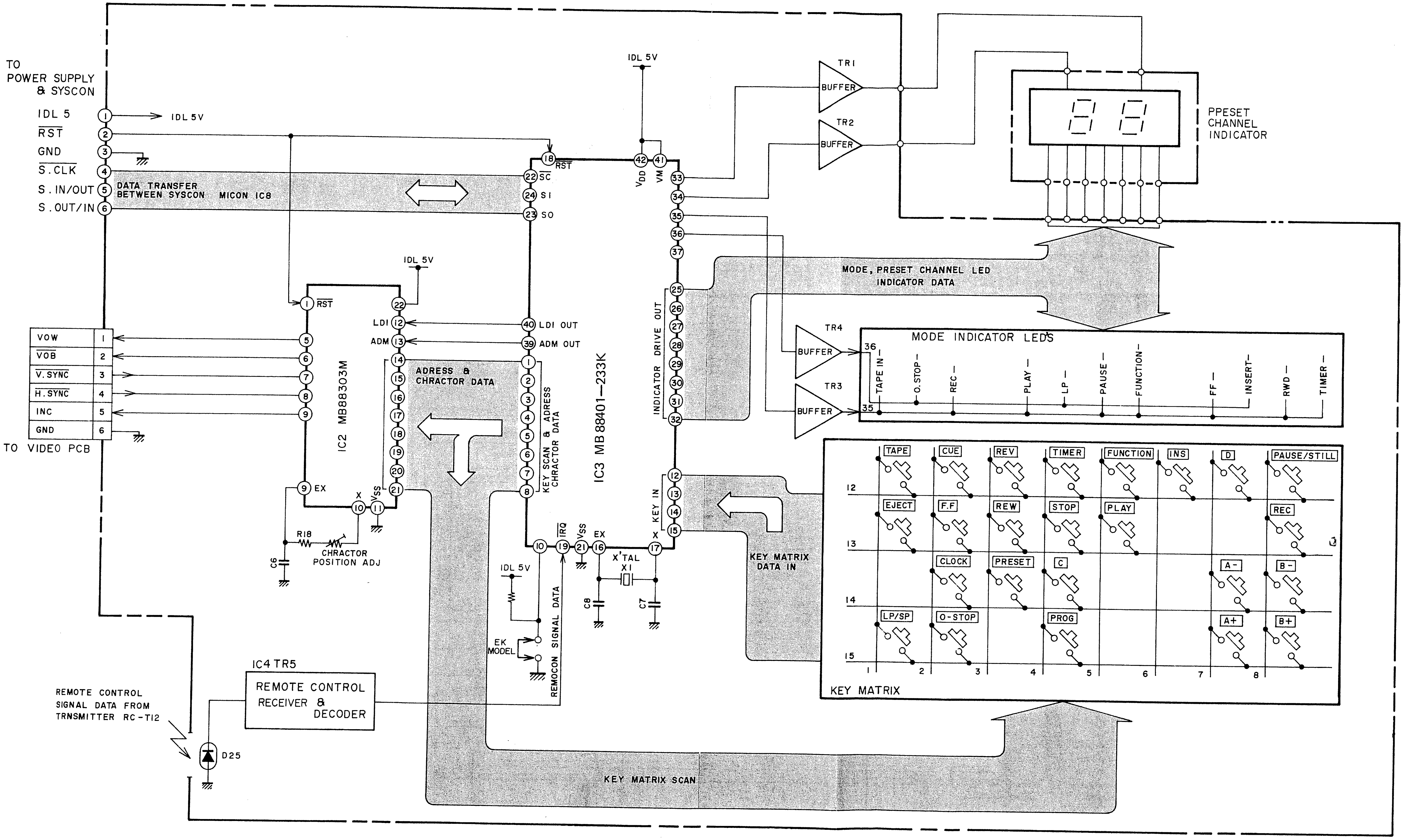

KEY IN
CH1
1
CH2
10
2
CH1 A
4
CH1 B
9
CH2 A
7
CH2 B
INPUT
6
Vcc
5
GND
3
8
CH1 CH2
OUTPUT

µPC1458(Dual Operational Amp)


V+
out2
I12
IN2
8
7
6
5
1
2
3
4
out1
I11
IN2
V−

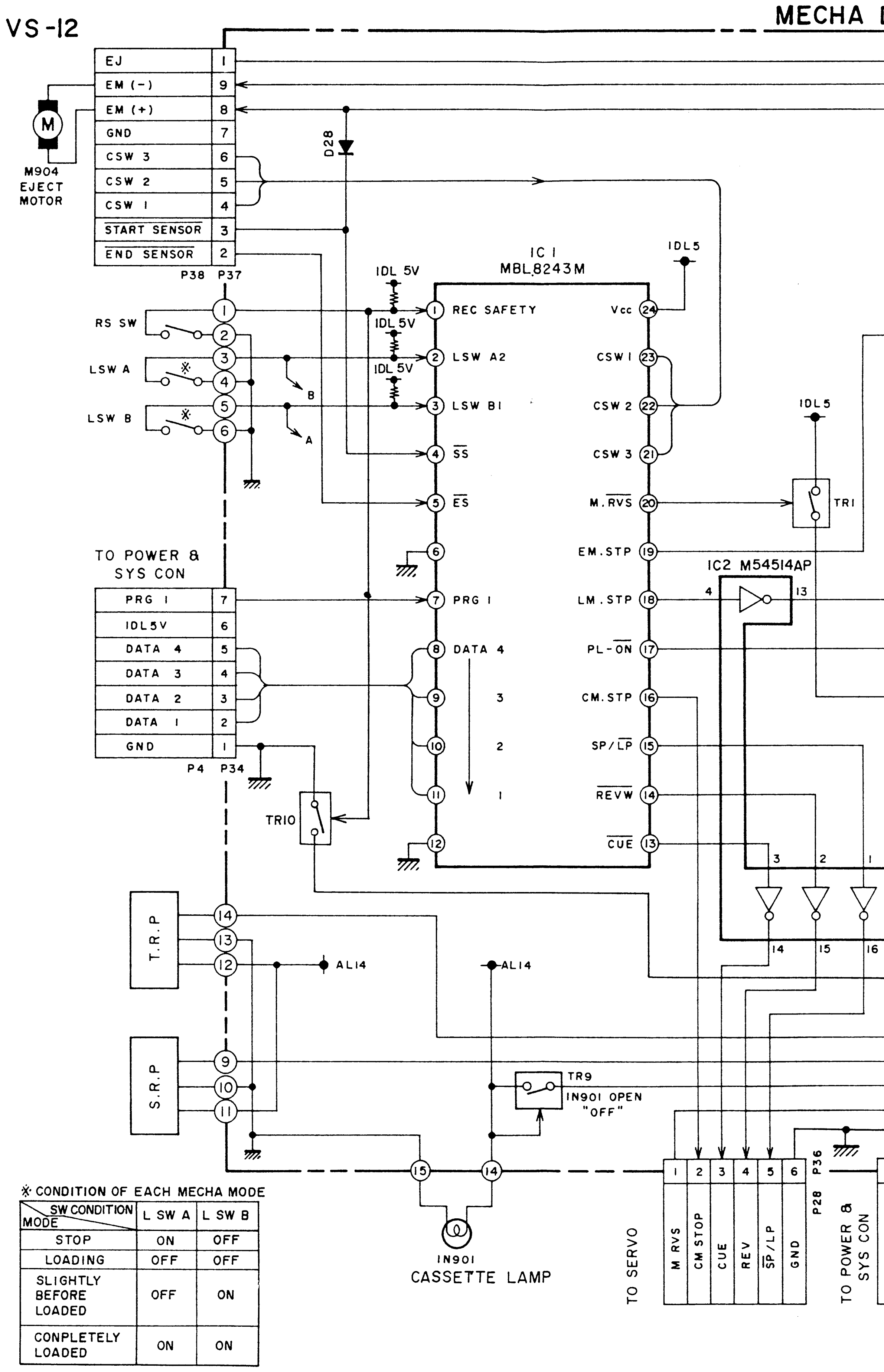

VS-12
TR1, IC3
IDL 33V REG
IDL 33V
IC2 TA78012AP
IDL 12V REG
IDL 12V
IC12, TR22, D27
AL 14V REG
TH1
AL 14V
TR16
IDL 5V + AL — ON
IC1 SI-9012
AL 12V REG
AL 12V
IC4 TA78005P
IDL 5V REG
IDL 5V
TR3, 4
POWER DOWN DETECTOR
F1
F2
F3
F4
D1
D4
D5
D6
SF8
R61
TO TRANSFORMER
P13
AC 18V
AC 18V
AC 9V
AC 9V
AC 40V
AC 40V
TO MECHA DRIVE PCB P35
P4
GND
DATE 1
DATE 2
DATE 3
DATE 4
IDL 5V
PROG 2
DATA BUS LINE WITH MECHA DRIVE IC1
TO LINEAR AUDIO PCB P218
P225
IDL 12V
A-PB
A-REC
A-S-DUB
MUTE
EE
TONE
DRUM HEATER
UNR 22V
HT SW
TO DEMODULATOR PCB P41
SD
GND
VF
AFT
VT
MUTE
BS-1
BS-2
AL 12
COMP
AMP
R81
D26
TR7
TR8
SERVO "ON"
IC7
INV
TR10, R22, C37
DIFFERENTIAL CIRCUIT
IC6 MBL 8243 I/O PORT EXPONDER
MUTE
BS-1
BS-2
TONE
BUZZ
DOLBY
SERVO
CTL
C-FG
SLEEP
Vcc
GND
P20
P21
P22
P23
PROG
CS
O MUTE
EE
PB
REC
B-DWN
DATA BUS LINE
IC8 MB8850I-147M CPU
DATA 1
DATA 2
DATA 3
DATA 4
A-PB
A-REC
A-S-DUB
SLOW
STILL
PROG 2
PROG 3
TRP
SWP
VID-J
AFT
EX
X
IRQ
TC
Vss
X'Tal
Vcc
START
LDi
VP
RST
AL
WE
CE
PAG 1
PAG 0
SO
S1
SC
IC11 COMP
IC9 MB8830IA DAC
DATA BUS LINE
TMO3
TMO2
TMO1
DAC1
DAC2
DAC3
DAC4
IC10 M5898I MEMORY (RAM)
ADRESS BUS LINE
TRANSFER BUS LINE
WITH OPERATION MI-CON IC3
TR14
TR11 AMP
R28
R29, C46
LPF
TR12 AMP
R34
R35, C48
LPF
TR15 AMP
R40
R41, C49
LPF
R44 to 46 C51 to 54
TWEEN-T FILTER
TR21
C67
D11
BUZZER
TO RF CONVERTER PCB P43
P9
NC
GND
IDL 12V
DRIVE PCB P39
P5
GND
AL 14V
AL 12V
TO VIDEO PCB P16
P7
HP
VJ
VP
TO LINEAR AUDIO PCB P218
P226
AL 12V
GND
V-REC12V
SP/LP
PB 12V
TO VIDEO PCB P86
P84
V-REC12V
GND
AL 12V
PB 12V
EE 12V
SWP
SP/LP
TR15 PB "ON"
SF5
TR17 REC "ON"
SF6
TR19 A-PB "ON"
TR20 INV
TR18 EE "ON"
P6
TRP
SRP
B-DWN
RM DRV
AL 12V
REC
GND
TO MECHA DRIVE
P81
IDL 5V
CTL
SLOW
STILL
S-REC 12V
GND
UNR 22V
AL 12V
GND
SERVO
TRK
TO SERVO PCB
P1
IDL 5V
RESET
GND
SC
S I/O
S O/I
TO OPERATION PCB (① to ⑥)
A B C D E F G H I J K
1 2 3 4 5 6 7 8

VS-12EG/EK
POWER & SYSCON
BLOCK DIAGAM
NO. 7-1 831104C


TO
POWER SUPPLY
& SYSCON
IDL 5
RST
GND
S.CLK
S.IN/OUT
S.OUT/IN
IDL 5V
DATA TRANSFER
BETWEEN SYSCON MICON IC8
IDL 5V
VDD
VM
RST
SC
SI
SO
TR1
BUFFER
TR2
BUFFER
PPESET
CHANNEL
INDICATOR
MODE, PRESET CHANNEL LED
INDICATOR DATA
IDL 5V
RST
LDI
ADM
LDI OUT
ADM OUT
VOW
VOB
V.SYNC
H.SYNC
INC
GND
TO VIDEO PCB
IC2 MB88303M
ADRESS &
CHRACTOR DATA
KEY SCAN & ADRESS
CHRACTOR DATA
IC3 MB88401-233K
INDICATOR DRIVE OUT
TR4
BUFFER
TR3
BUFFER
MODE INDICATOR LEDS
TAPE IN
0.STOP
REC
PLAY
LP
PAUSE
FUNCTION
FF
INSERT
RWD
TIMER
EX
X
VSS
R18
CHRACTOR
POSITION ADJ
C6
IRQ
EX
X'TAL
X1
C8
C7
KEY IN
KEY MATRIX
DATA IN
IDL 5V
EK
MODEL
REMOCON SIGNAL DATA
TAPE
CUE
REV
TIMER
FUNCTION
INS
D
PAUSE/STILL
EJECT
F.F
REW
STOP
PLAY
REC
CLOCK
PRESET
C
A-
B-
LP/SP
0-STOP
PROG
A+
B+
KEY MATRIX
IC4 TR5
REMOTE CONTROL
RECEIVER &
DECODER
REMOTE CONTROL
SIGNAL DATA FROM
TRNSMITTER RC-T12
D25
KEY MATRIX SCAN

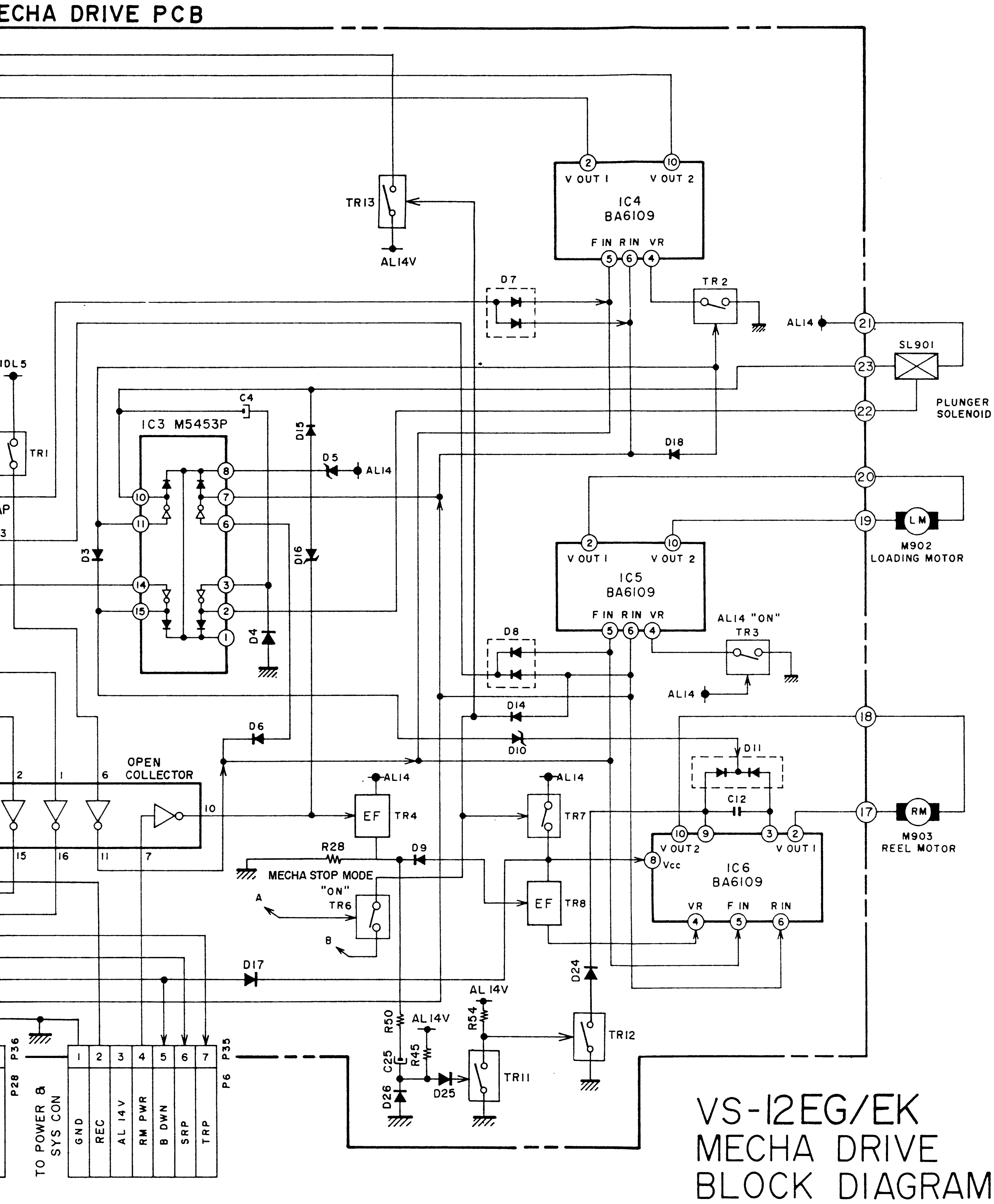
VS-12EG/EK
OPERATION
BLOCK DIAGRAM

NO.7-2 831112E
2C

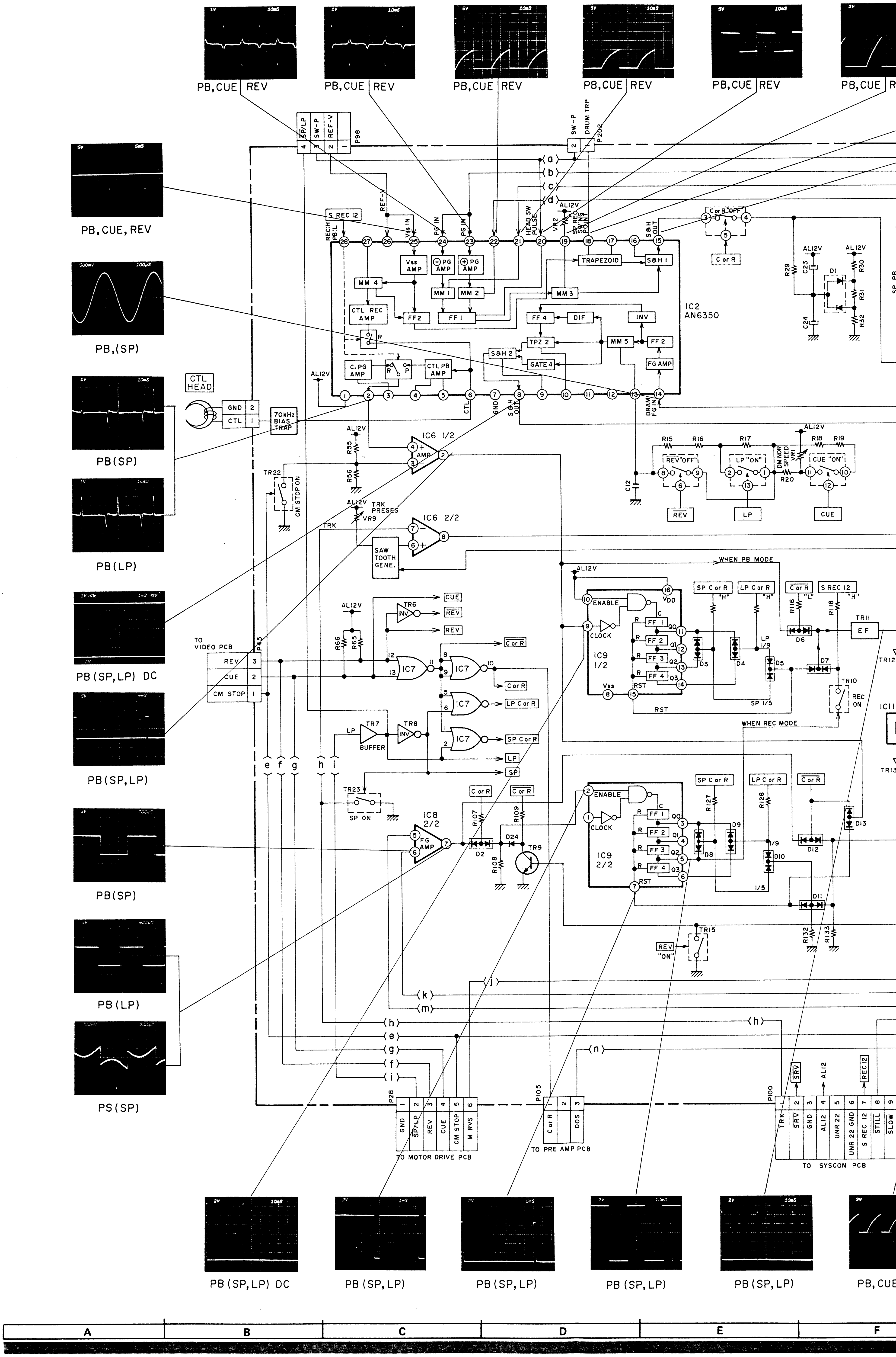

MECHA
VS-12
EJ
EM (−)
EM (+)
GND
CSW 3
CSW 2
CSW 1
START SENSOR
END SENSOR
M
M904
EJECT
MOTOR
P38 P37
D28
IDL 5V
IDL 5V
IDL 5V
IC 1
MBL8243M
IDL5
REC SAFETY
LSW A2
LSW B1
SS
ES
PRG 1
DATA 4
3
2
1
Vcc
CSW 1
CSW 2
CSW 3
M.RVS
EM.STP
LM.STP
PL-ON
CM.STP
SP/LP
REVW
CUE
RS SW
LSW A
LSW B
※
B
A
IDL5
TR1
IC2 M54514AP
4
13
3
2
1
14
15
16
TO POWER &
SYS CON
PRG 1
IDL5V
DATA 4
DATA 3
DATA 2
DATA 1
GND
P4 P34
TR10
T.R.P.
S.R.P.
AL14
AL14
TR9
IN901 OPEN
"OFF"
IN901
CASSETTE LAMP
TO SERVO
M RVS
CM STOP
CUE
REV
SP/LP
GND
P28 P36
TO POWER &
SYS CON

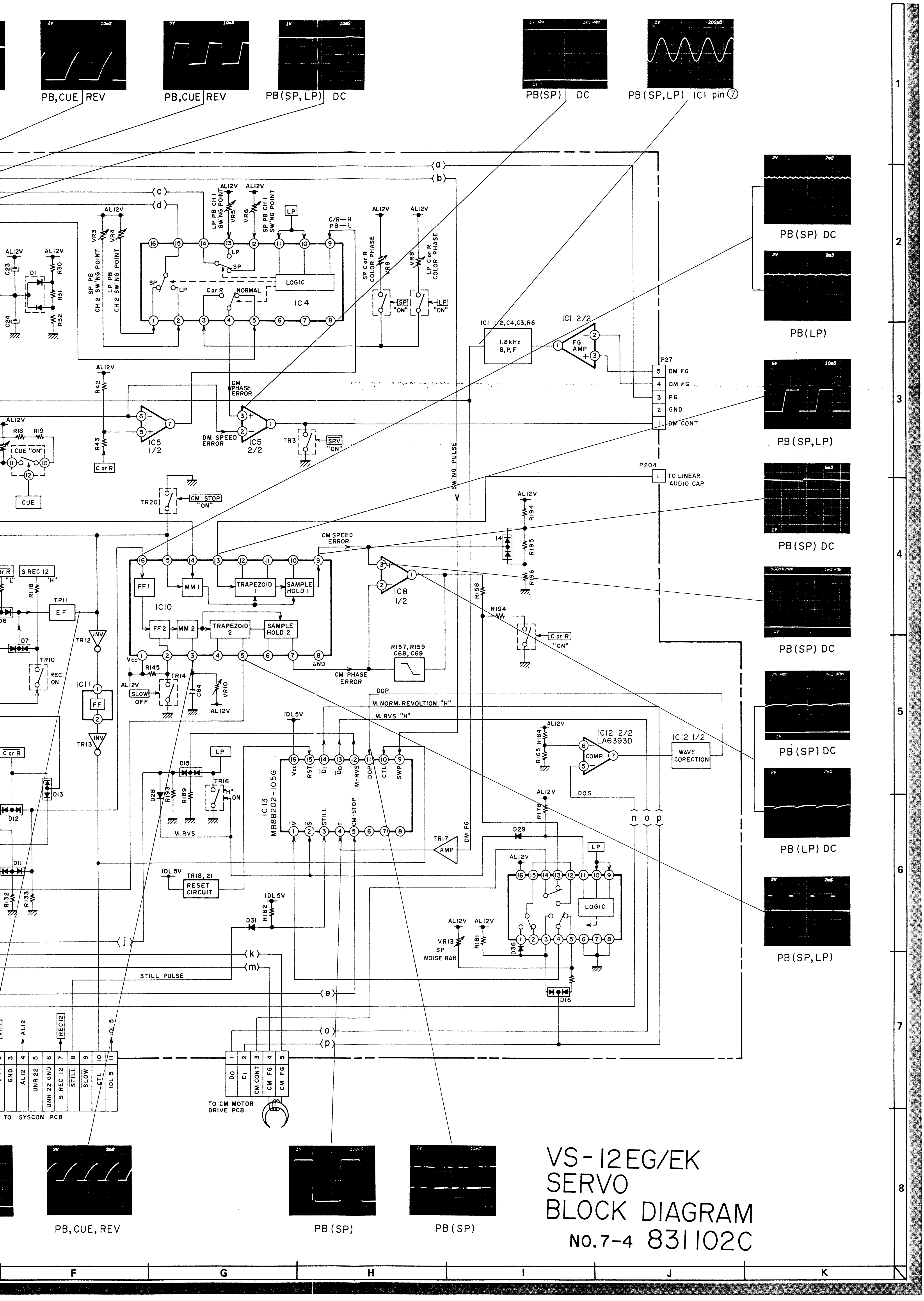
※ CONDITION OF EACH MECHA MODE

MODE \ SW CONDITION	L SW A	L SW B
STOP	ON	OFF
LOADING	OFF	OFF
SLIGHTLY BEFORE LOADED	OFF	ON
CONPLETELY LOADED	ON	ON


ECHA DRIVE PCB
TR13
AL14V
IC4
BA6109
V OUT 1
V OUT 2
F IN R IN VR
D7
TR 2
AL14
21
SL901
23
22
PLUNGER
SOLENOID
DL5
TR1
C4
IC3 M5453P
D15
D5
AL14
D18
20
19
M902
LOADING MOTOR
D3
D16
D4
IC5
BA6109
V OUT 1
V OUT 2
F IN R IN VR
AL14 "ON"
TR3
D8
AL14
D14
18
D10
D11
D6
C12
OPEN
COLLECTOR
AL14
AL14
EF
TR4
TR7
IC6
BA6109
V OUT 2
V OUT 1
Vcc
VR
F IN
R IN
17
M903
REEL MOTOR
R28
D9
MECHA STOP MODE
"ON"
TR6
A
B
EF
TR8
D17
D24
AL 14V
R50
AL14V
R54
TR12
C25
R45
D26
D25
TR11
P36
P28
P35
P6
1 2 3 4 5 6 7
GND
REC
AL 14V
RM PWR
B DWN
SRP
TRP
TO POWER &
SYS CON

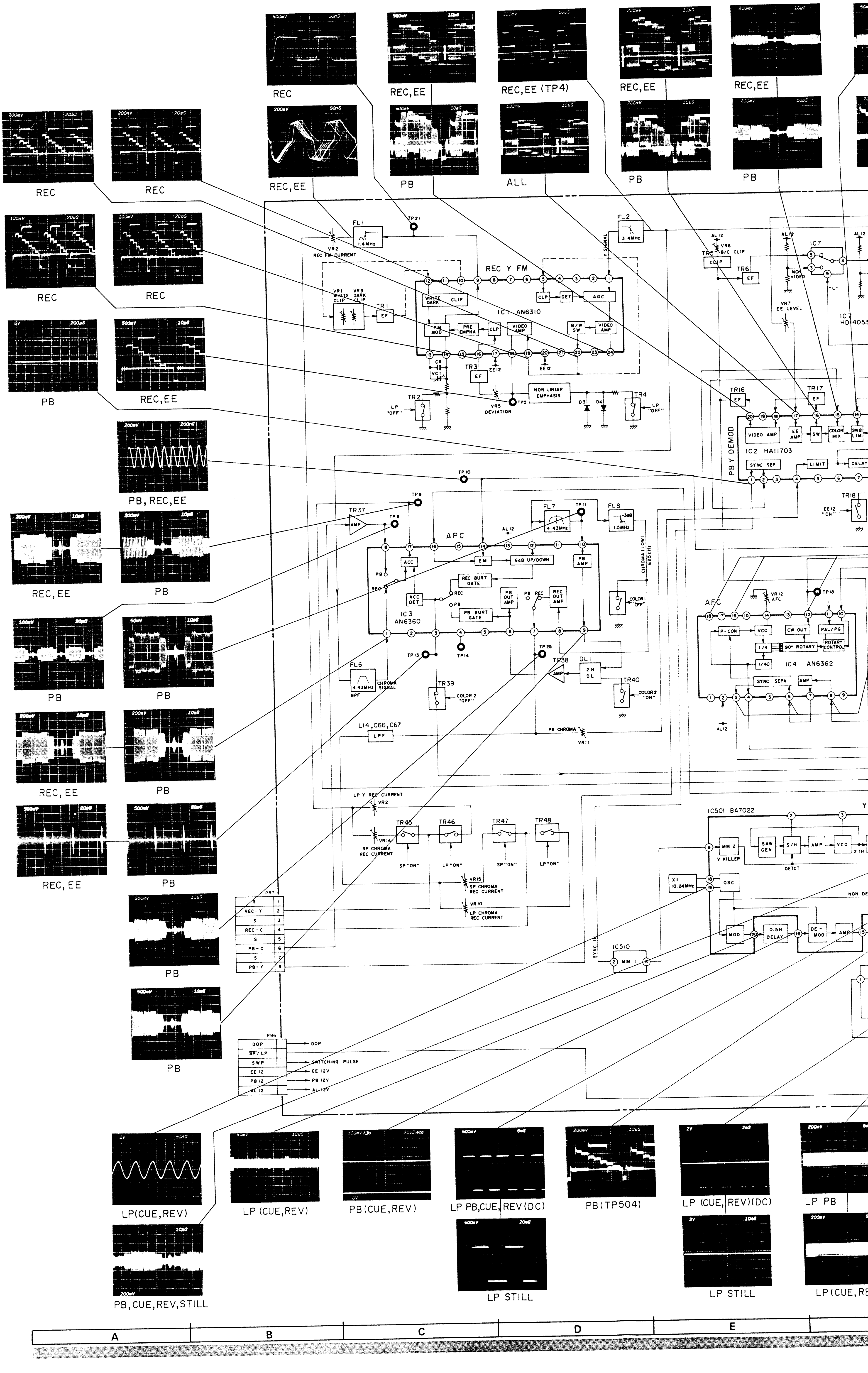
VS-12EG/EK
MECHA DRIVE
BLOCK DIAGRAM
NO.7-3 830532E

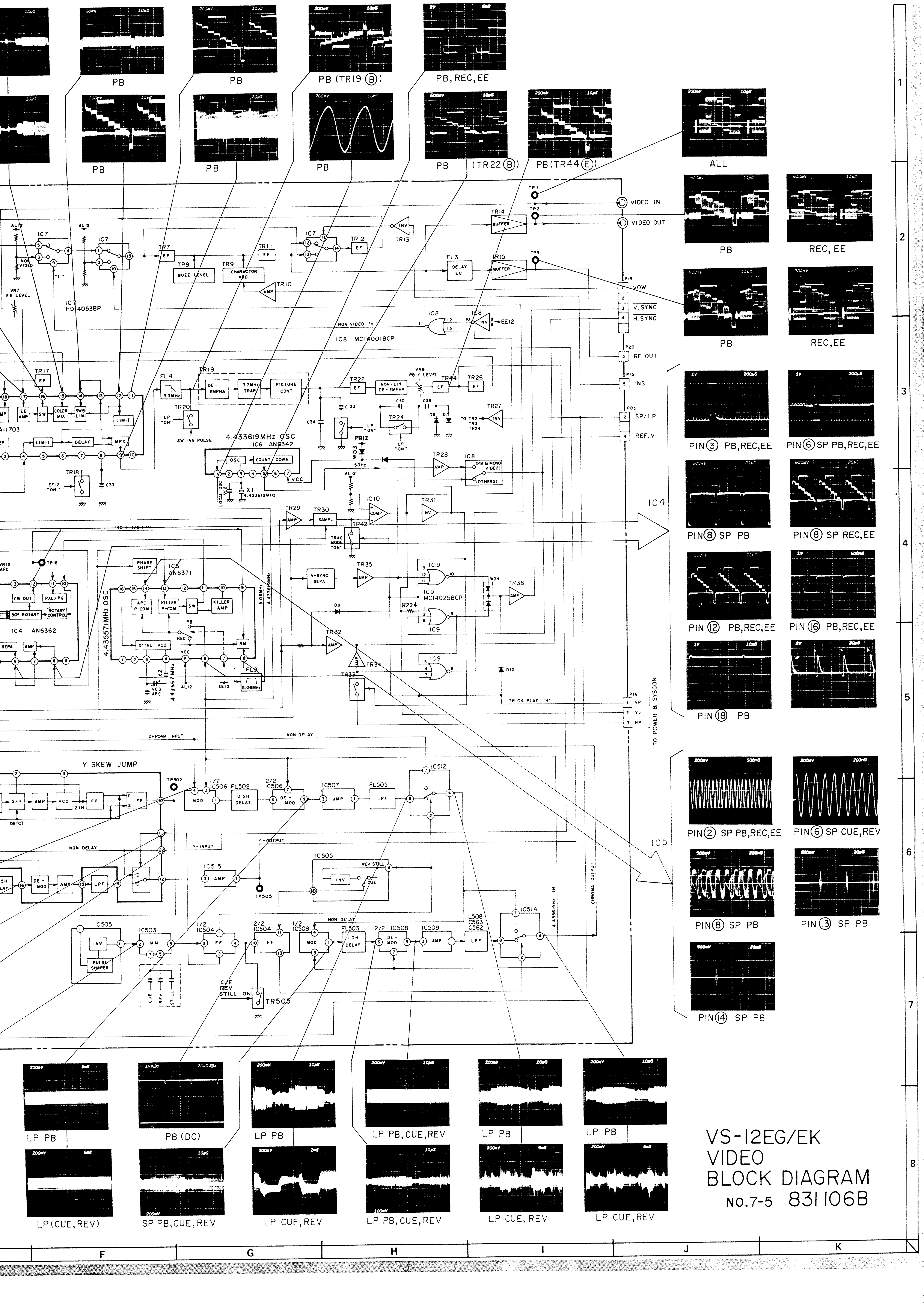

PB,CUE REV
PB,CUE,REV
PB,(SP)
PB(SP)
PB(LP)
PB(SP,LP) DC
PB(SP,LP)
PB(SP)
PB (LP)
PS(SP)
PB,CUE
SP/LP
SW-P
REF-V
P98
SW-P
DRUM TRP
P202
CTL HEAD
GND
CTL
70kHz BIAS TRAP
S REC 12
REC H PB L
REF-V
Vss IN
PG IN
PG IN
HEAD SW PULSE
VR2
AL12V
SP REC SW-ING POINT
S&H OUT
Vss AMP
⊖PG AMP
⊕PG AMP
TRAPEZOID
S&H 1
MM 4
MM 1
MM 2
MM 3
CTL REC AMP
FF2
FF 1
FF 4
DIF
INV
TPZ 2
MM 5
FF 2
S&H 2
GATE 4
FG AMP
C. PG AMP
CTL PB AMP
IC2
AN6350
CTL
GND
S&H OUT
DRAM FG IN
C or R "OFF"
C or R
R29
C23
C24
D1
R30
R31
R32
IC6 1/2
AMP
R55
R56
TR22
CM STOP ON
TRK PRESES
VR9
IC6 2/2
SAW TOOTH GENE.
TRK
R15
R16
R17
R18
R19
R20
VR1
DM NOR SPEED
C12
REV "OFF"
LP "ON"
CUE "ON"
REV
LP
CUE
WHEN PB MODE
ENABLE
VDD
CLOCK
IC9 1/2
Vss
RST
SP C or R "H"
LP C or R "H"
C or R "L"
S REC 12 "H"
R116
R118
D3
D4
D5
D6
D7
LP 1/9
SP 1/5
EF
TR11
TR10
REC ON
IC11
TR12
TR13
WHEN REC MODE
TR6
INV
CUE
REV
REV
TO VIDEO PCB
P45
REV
CUE
CM STOP
R66
R65
IC7
C or R
C or R
LP C or R
SP C or R
TR7
TR8
BUFFER
LP
SP
e f g h i
TR23
SP ON
IC8 2/2
FG AMP
R107
R109
R108
D2
D24
TR9
IC9 2/2
R127
R128
D8
D9
D10
D11
D12
D13
1/9
1/5
R132
R133
TR15
REV "ON"
j k m h e g f i n
P28
GND
SP/LP
REV
CUE
CM STOP
M RVS
TO MOTOR DRIVE PCB
P105
C or R
DOS
TO PRE AMP PCB
P100
TRK
SRV
GND
AL12
UNR 22
UNR 22 GND
S REC 12
STILL
SLOW
TO SYSCON PCB
A
B
C
D
E
F


PB,CUE REV
PB,CUE REV
PB(SP,LP) DC
PB(SP) DC
PB(SP,LP) IC1 pin ⑦
PB(SP) DC
PB(LP)
PB(SP,LP)
PB(SP) DC
PB(SP) DC
PB(SP) DC
PB(LP) DC
PB(SP,LP)
PB,CUE,REV
PB(SP)
PB(SP)
2V 10mS
5V 10mS
1V 10mS
1V 200μS
2V 2mS
5V 10mS
AL12V
VR3
VR4
SP PB CH 2 SW'NG POINT
LP PB CH 2 SW'NG POINT
LP PB CH 1 SW'NG POINT
SP PB CH 1 SW'NG POINT
VR5
VR6
LP
SP
C/R—H PB—L
Cor R
NORMAL
LOGIC
IC 4
SP Cor R COLOR PHASE
LP C or R COLOR PHASE
VR9
VR8
SP "ON"
LP "ON"
C23
C24
D1
R30
R31
R32
R42
R43
C or R
R18
R19
CUE "ON"
CUE
IC5 1/2
IC5 2/2
DM PHASE ERROR
DM SPEED ERROR
TR3
SRV "ON"
IC1 1/2,C4,C3,R6
1.8kHz B,P,F
IC1 2/2
FG AMP
P27
DM FG
DM FG
PG
GND
DM CONT
P204
TO LINEAR AUDIO CAP
TR20
CM STOP "ON"
SW'NG PULSE
CM SPEED ERROR
IC10
FF1
MM1
TRAPEZOID 1
SAMPLE HOLD 1
FF2
MM 2
TRAPEZOID 2
SAMPLE HOLD 2
Vcc
GND
IC8 1/2
R157,R159 C68,C69
CM PHASE ERROR
R145
TR14
SLOW OFF
C64
VR10
R194
R195
R196
R158
C or R "ON"
S REC 12
R118
TR11
EF
INV
TR12
D6
D7
TR10
REC ON
IC11
FF
TR13
D13
D12
D11
R132
R133
D15
D28
R193
R189
TR16
"H" ON
M.RVS
DOP
M. NORM. REVOLTION "H"
M. RVS "H"
IDL5V
IC13 MB88202-105G
RST
M-RVS
CTL
SWP
STILL
CM-STOP
TR17 AMP
DM FG
TR18, 21 RESET CIRCUIT
D31
R162
IC12 2/2 LA6393D
R164
R165
COMP
DOS
IC12 1/2
WAVE CORECTION
R178
D29
D36
VR13 SP NOISE BAR
R181
D16
STILL PULSE
(a) (b) (c) (d) (e) (j) (k) (m) (n) (o) (p)
AL12
REC12
IDL 5
GND
UNR 22
UNR 22 GND
S REC 12
STILL
SLOW
CTL
IDL 5
TO SYSCON PCB
D0
D1
CM CONT
CM FG
CM FG
TO CM MOTOR DRIVE PCB
1 2 3 4 5 6 7 8
F G H I J K

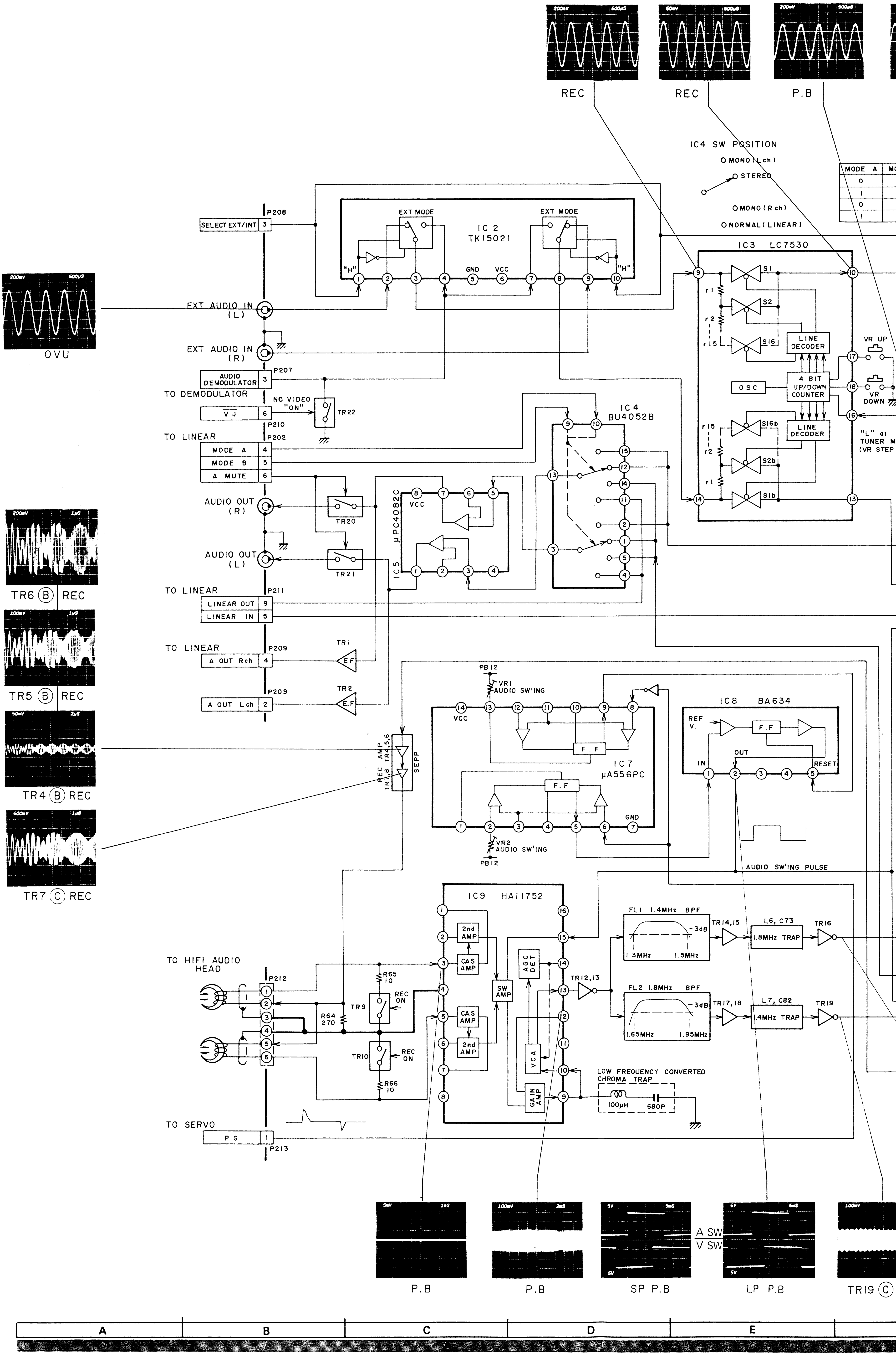
VS-12EG/EK SERVO BLOCK DIAGRAM

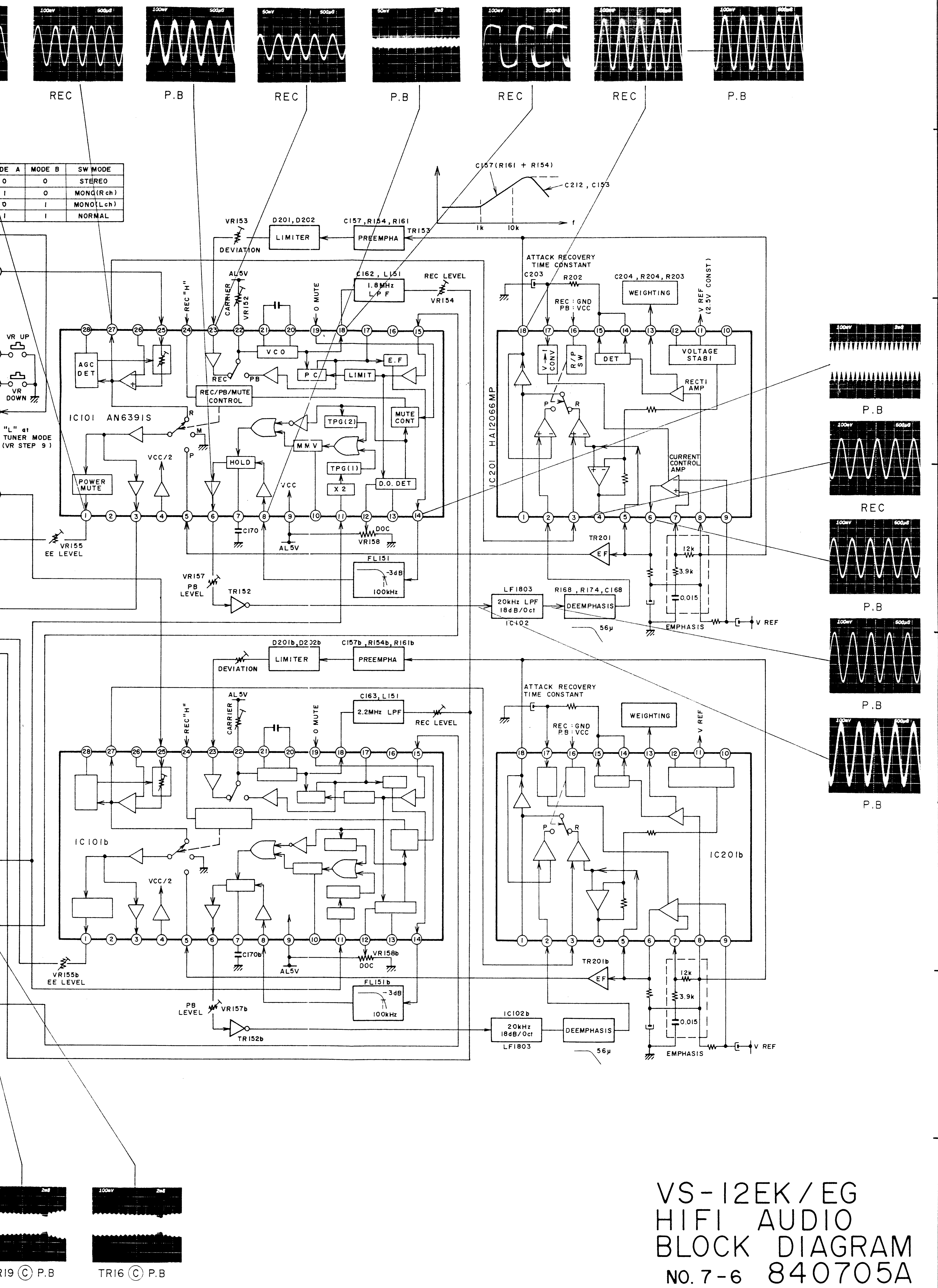
NO.7-4 831102C


REC
REC,EE
REC,EE (TP4)
REC,EE
REC,EE
REC,EE
PB
ALL
PB
PB
REC
REC
REC
REC
PB
REC,EE
PB,REC,EE
REC,EE
PB
PB
PB
REC,EE
PB
REC,EE
PB
PB
PB
LP(CUE,REV)
LP (CUE,REV)
PB(CUE,REV)
LP PB,CUE,REV(DC)
PB(TP504)
LP (CUE, REV)(DC)
LP PB
PB,CUE,REV,STILL
LP STILL
LP STILL
LP(CUE,RE
FL1
1.4MHz
VR2
REC FM CURRENT
TP21
FL2
3.4MHz
Y SIGNAL
REC Y FM
WHITE DARK
CLIP
CLP
DET
AGC
IC1 AN6310
VR1 WHITE CLIP
VR3 DARK CLIP
TR1
EF
FM MOD
PRE EMPHA
VIDEO AMP
B/W SW
C6
VC1
TR3
EE12
NON LINIAR EMPHASIS
TP5
VR5 DEVIATION
D3
D4
TR2
LP "OFF"
TR4
LP "OFF"
AL12
VR6 B/C CLIP
TR5
CLIP
TR6
EF
IC7
NON VIDEO
"L"
VR7 EE LEVEL
IC7 HD14053
TR16
TR17
PB Y DEMOD
VIDEO AMP
EE AMP
SW
COLOR MIX
SWB LIM
IC2 HA11703
SYNC SEP
LIMIT
DELAY
TR18
EE12 "ON"
TP10
TP9
TR37
AMP
TP8
APC
TP11
FL7
4.43MHz
FL8
-3dB
1.5MHz
CHROMA (LOW) 625kHz
ACC
BM
6dB UP/DOWN
PB AMP
PB
REC
REC BURT GATE
ACC DET
PB OUT AMP
REC OUT AMP
COLOR1 "OFF"
IC3 AN6360
PB BURT GATE
TP13
TP14
TP25
TR38
AMP
DL1
2H DL
TR40
COLOR 2 "ON"
FL6
4.43MHz BPF
CHROMA SIGNAL
TR39
COLOR 2 "OFF"
L14, C66, C67
LPF
PB CHROMA
VR11
AFC
VR12 AFC
TP18
P-CON
VCO
CW OUT
PAL/PG
1/4
90° ROTARY
ROTARY CONTROL
1/40
IC4 AN6362
SYNC SEPA
AMP
LP Y REC CURRENT
VR2
VR14 SP CHROMA REC CURRENT
TR45
TR46
TR47
TR48
SP "ON"
LP "ON"
SP "ON"
LP "ON"
VR15 SP CHROMA REC CURRENT
VR10 LP CHROMA REC CURRENT
P87
S
REC-Y
S
REC-C
S
PB-C
S
PB-Y
SYNC IN
IC510
MM 1
IC501 BA7022
MM 2
V KILLER
SAW GEN
S/H
AMP
VCO
DETCT
X1 10.24MHz
OSC
NON DE
MOD
0.5H DELAY
DE-MOD
AMP
P86
DOP
SP/LP
SWP
EE12
PB12
AL12
DOP
SWITCHING PULSE
EE 12V
PB 12V
AL 12V
A
B
C
D
E


PB
PB (TR19 Ⓑ)
PB, REC, EE
PB
PB
PB
PB
(TR22 Ⓑ)
PB (TR44 Ⓔ)
ALL
PB
REC, EE
PB
REC, EE
PIN③ PB, REC, EE
PIN⑥ SP PB, REC, EE
PIN⑧ SP PB
PIN⑧ SP REC, EE
PIN⑫ PB, REC, EE
PIN⑯ PB, REC, EE
PIN⑱ PB
PIN② SP PB, REC, EE
PIN⑥ SP CUE, REV
PIN⑧ SP PB
PIN⑬ SP PB
PIN⑭ SP PB
IC4
IC5
TP1
TP2
TP3
VIDEO IN
VIDEO OUT
TR14 BUFFER
TR15 BUFFER
FL3 DELAY EQ
P15 VOW
V. SYNC
H. SYNC
P20 RF OUT
P15 INS
P85 SP/LP
REF. V
P16 VP VJ HP
TO POWER & SYSCON
IC7
IC7 HD14053BP
AL12
NON VIDEO
"L"
VR7 EE LEVEL
TR7 EF
TR8 BUZZ LEVEL
TR9 CHARACTOR ADD
TR10 AMP
TR11 EF
TR12 EF
TR13 INV
IC8
IC8 MC14001BCP
NON VIDEO "H"
EE12
TR17 EF
EE AMP
SW
COLOR MIX
SWB LIM
LIMIT
DELAY
MPX
TR18
EE12 "ON"
C33
FL4 3.3MHz
TR20
LP "ON"
SW'ING PULSE
TR19
DE-EMPHA
3.7MHz TRAP
PICTURE CONT
TR22 EF
NON-LIN DE-EMPHA
VR9 PB Y LEVEL
TR44 EF
TR26 EF
C40 C39
TR24
D6 D7
TR27 INV
TO TR2 TR3 TR24
C34 C133
4.433619MHz OSC
IC6 AN6342
OSC
COUNT DOWN
LOCAL OSC
X1 4.433619MHz
VCC
PB12
WD3
50Hz
TR28 AMP
IC8 (PB & MONO VIDEO) (OTHERS)
IC10 COMP
TR29 AMP
TR30 SAMPL
TR31 INV
TR42
TRAC MODE "ON"
VR12 AFC
TP18
CW OUT
PAL/PG
90° ROTARY
ROTARY CONTROL
IC4 AN6362
SEPA
AMP
PHASE SHIFT
IC5 AN6371
APC P-COM
KILLER P-COM
KILLER AMP
X'TAL VCO
BM
PB REC
4.435571MHz OSC
X2 4.435571MHz
VC3 APC
FL9 5.06MHz
5.06MHz
4.433619MHz
V-SYNC SEPA
TR35 AMP
IC9 MC14025BCP
IC9
R224
D9
WD4
TR36 AMP
TR32 AMP
TR34
TR33
D12
TRICK PLAY "H"
CHROMA INPUT
NON DELAY
Y SKEW JUMP
S/H
AMP
VCO
FF
2fH
DETCT
TP502
1/2 IC506 MOD
FL502 0.5H DELAY
2/2 IC506 DE-MOD
IC507 AMP
FL505 LPF
IC512
Y-INPUT
Y-OUTPUT
DE-MOD
LPF
IC515 AMP
TP505
IC505 REV STILL INV CUE
CHROMA OUTPUT
4.433619MHz IN
IC505 INV PULSE SHAPER
IC503 MM
1/2 IC504 FF
2/2 IC504 FF
1/2 IC508 MOD
FL503 1.0H DELAY
2/2 IC508 DE-MOD
IC509 AMP
L508 C563 C562 LPF
IC514
CUE REV STILL
CUE REV STILL ON
TR505
LP PB
PB (DC)
LP PB
LP PB, CUE, REV
LP PB
LP PB
LP (CUE, REV)
SP PB, CUE, REV
LP CUE, REV
LP PB, CUE, REV
LP CUE, REV
LP CUE, REV
1
2
3
4
5
6
7
8
F
G
H
I
J
K

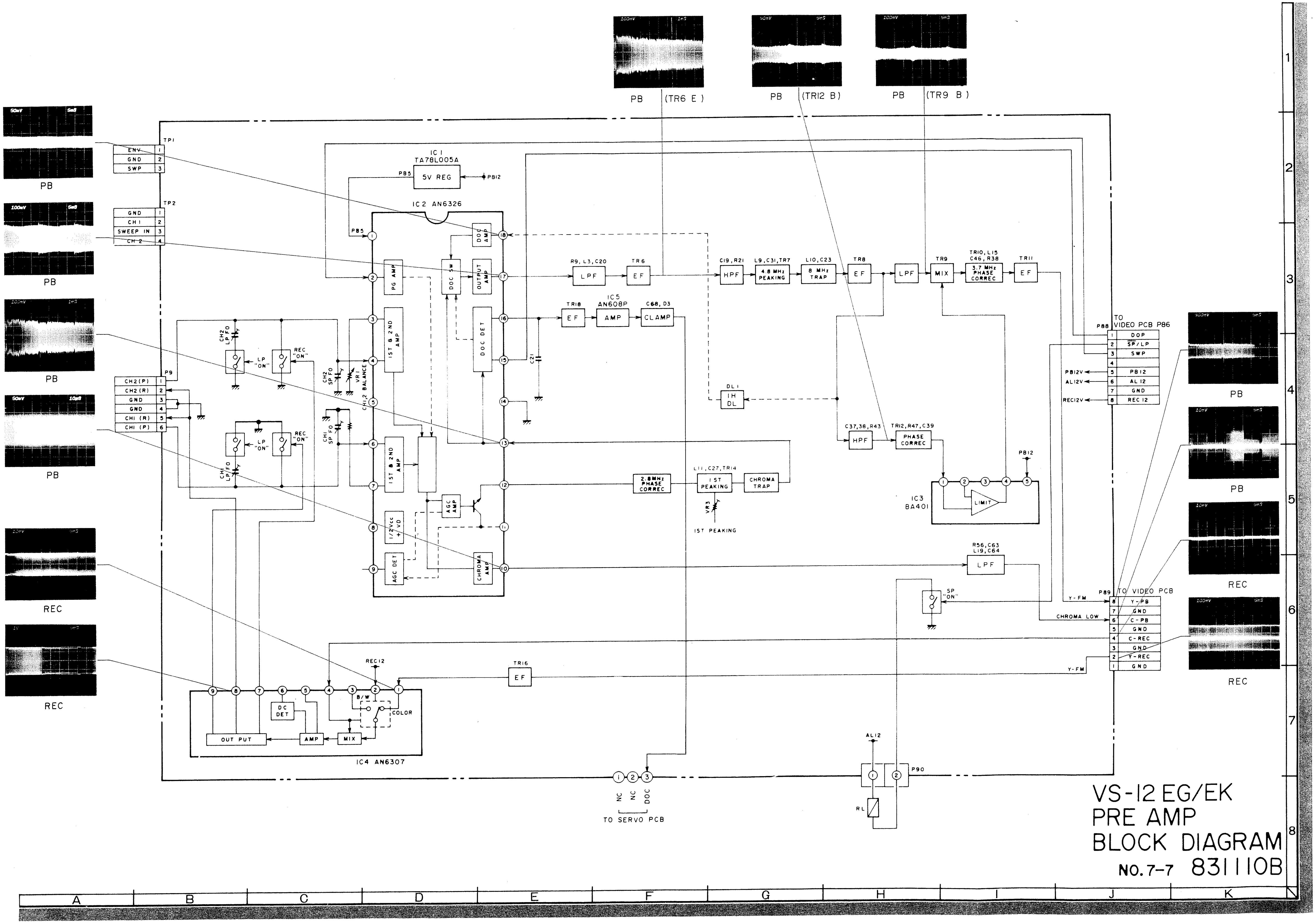
VS-12EG/EK
VIDEO
BLOCK DIAGRAM
No.7-5 831106B


REC
REC
P.B
IC4 SW POSITION
O MONO (L ch)
O STEREO
O MONO (R ch)
O NORMAL (LINEAR)
MODE A
IC 2
TK15021
EXT MODE
EXT MODE
"H"
"H"
GND
VCC
P208
SELECT EXT/INT 3
EXT AUDIO IN (L)
EXT AUDIO IN (R)
OVU
P207
AUDIO DEMODULATOR 3
TO DEMODULATOR
NO VIDEO "ON"
TR22
V J 6
P210
TO LINEAR
P202
MODE A 4
MODE B 5
A MUTE 6
IC3 LC7530
S1
S2
S16
r1
r2
r15
LINE DECODER
4 BIT UP/DOWN COUNTER
OSC
LINE DECODER
S16b
S2b
S1b
VR UP
VR DOWN
"L" at TUNER M (VR STEP
IC4
BU4052B
IC5 μPC4082C
VCC
AUDIO OUT (R)
AUDIO OUT (L)
TR20
TR21
TR6 (B) REC
TR5 (B) REC
TR4 (B) REC
TR7 (C) REC
TO LINEAR
P211
LINEAR OUT 9
LINEAR IN 5
TO LINEAR
P209
A OUT Rch 4
TR1
E.F
P209
A OUT Lch 2
TR2
E.F
REC AMP TR7,8 TR4,5,6
SEPP
PB12
VR1 AUDIO SW'ING
VCC
F.F
IC7
μA556PC
F.F
GND
VR2 AUDIO SW'ING
PB12
IC8 BA634
REF V.
F.F
IN
OUT
RESET
AUDIO SW'ING PULSE
IC9 HA11752
2nd AMP
CAS AMP
CAS AMP
2nd AMP
SW AMP
AGC DET
VCA
GAIN AMP
TO HIFI AUDIO HEAD
P212
R65 10
REC ON
TR9
R64 270
TR10
REC ON
R66 10
TR12,13
FL1 1.4MHz BPF
-3dB
1.3MHz
1.5MHz
TR14,15
L6, C73
1.8MHz TRAP
TR16
FL2 1.8MHz BPF
-3dB
1.65MHz
1.95MHz
TR17,18
L7, C82
1.4MHz TRAP
TR19
LOW FREQUENCY CONVERTED CHROMA TRAP
100μH
680P
TO SERVO
PG 1
P213
P.B
P.B
A SW
V SW
SP P.B
LP P.B
TR19 (C)
A
B
C
D
E


REC
P.B
REC
P.B
REC
REC
P.B
C157(R161 + R154)
C212 , C153
1k
10k
f
VR153
DEVIATION
D201,D202
LIMITER
C157,R154,R161
PREEMPHA
TR153
AL5V
CARRIER
VR152
REC "H"
0 MUTE
C162 , L151
1.8MHz LPF
REC LEVEL
VR154
VR UP
VR DOWN
"L" at TUNER MODE (VR STEP 9)
AGC DET
REC/PB/MUTE CONTROL
VCO
P C
LIMIT
E.F
MUTE CONT
TPG(2)
TPG(1)
MMV
HOLD
X 2
D.O. DET
POWER MUTE
VCC/2
VCC
IC101 AN6391S
C170
AL5V
DOC
VR158
VR155
EE LEVEL
VR157
PB LEVEL
TR152
FL151
-3dB
100kHz
ATTACK RECOVERY TIME CONSTANT
C203
R202
REC : GND
PB : VCC
C204 , R204, R203
WEIGHTING
V REF (2.5V CONST)
V-I CONV
R/P SW
DET
VOLTAGE STABI
RECTI AMP
CURRENT CONTROL AMP
IC201 HA12066MP
TR201
EF
12k
3.9k
0.015
EMPHASIS
V REF
LF1803
20kHz LPF 18dB/Oct
IC102
R168 , R174, C168
DEEMPHASIS
56μ
D201b,D202b
C157b ,R154b, R161b
C163, L151
2.2MHz LPF
IC101b
C170b
VR158b
VR155b
VR157b
TR152b
FL151b
IC102b
IC201b
TR201b
REC
P.B
P.B
P.B
TR19 Ⓒ P.B
TR16 Ⓒ P.B
1
2
3
4
5
6
7
8
F
G
H
I
J
K

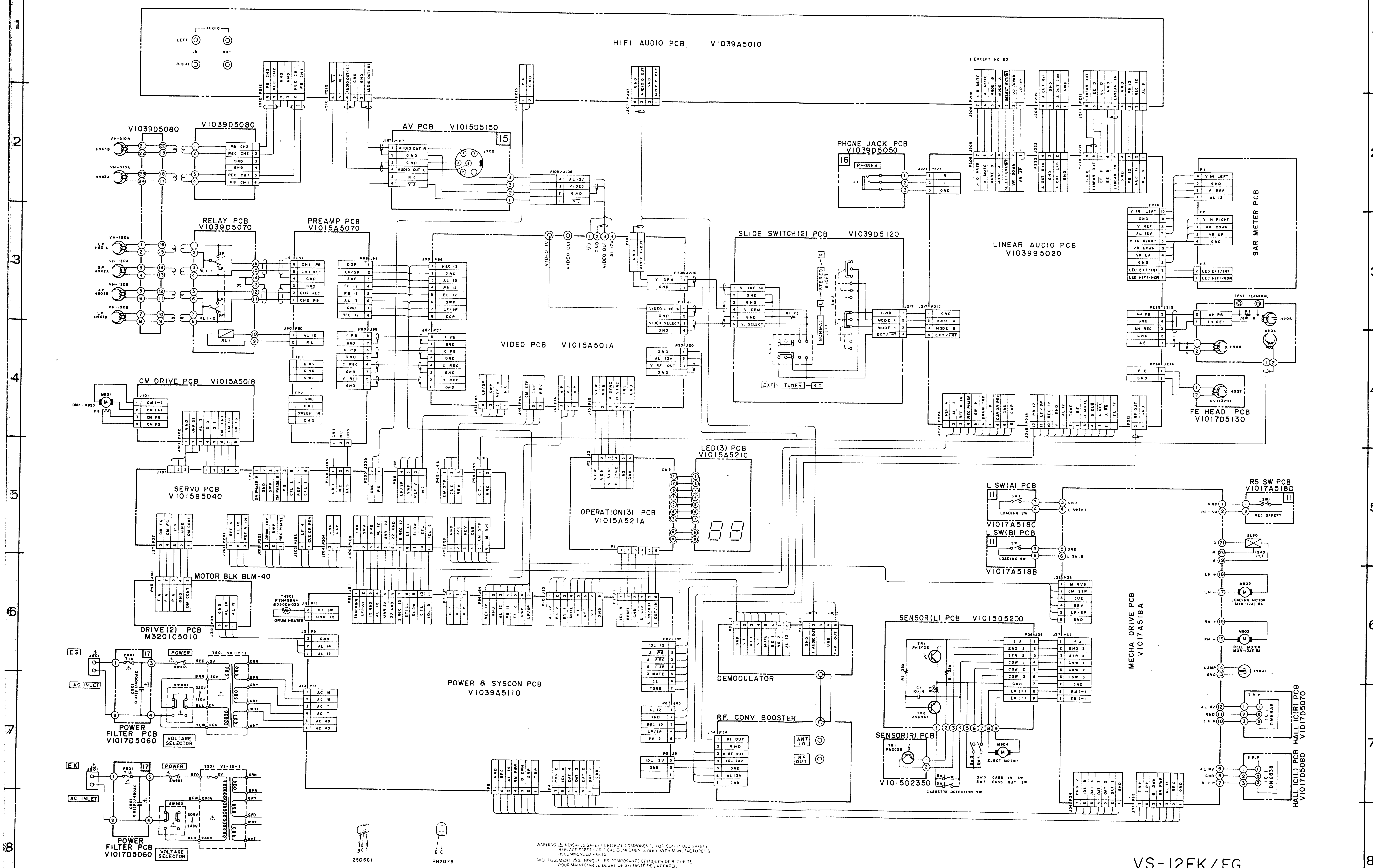
DE A	MODE B	SW MODE
0	0	STEREO
1	0	MONO(Rch)
0	1	MONO(Lch)
1	1	NORMAL

VS-12EK/EG
HIFI AUDIO
BLOCK DIAGRAM
NO. 7-6 840705A


PB (TR6 E)
PB (TRI2 B)
PB (TR9 B)
TP1
ENV 1
GND 2
SWP 3
PB
TP2
GND 1
CH I 2
SWEEP IN 3
CH 2 4
PB
P9
CH2 (P) 1
CH2 (R) 2
GND 3
GND 4
CH1 (R) 5
CH1 (P) 6
PB
PB
REC
REC
IC 1 TA78L005A
5V REG
PB5
PB12
IC 2 AN6326
PG AMP
DOC SW
OUTPUT AMP
DOC AMP
1ST & 2ND AMP
DOC DET
AGC AMP
1/2Vcc + VD
AGC DET
CHROMA AMP
CH2 LP FO
CH2 SP FO
VR1
CH1,2 BALANCE
CH1 SP FO
CH1 LP/FO
LP "ON"
REC "ON"
C21
R9, L3, C20
LPF
TR6
EF
TR18
IC5 AN608P
AMP
C68, D3
CLAMP
C19, R21
HPF
L9, C31, TR7
4.8 MHz PEAKING
L10, C23
8 MHz TRAP
TR8
LPF
TR9
MIX
TR10, L15 C46, R38
3.7 MHz PHASE CORREC
TR11
DL1
1H DL
C37, 38, R43
HPF
TR12, R47, C39
PHASE CORREC
IC3 BA401
LIMIT
2.8MHz PHASE CORREC
L11, C27, TR14
1ST PEAKING
CHROMA TRAP
VR3
1ST PEAKING
R56, C63 L19, C64
LPF
SP "ON"
TO VIDEO PCB P86
P88
1 DOP
2 SP/LP
3 SWP
4
5 PB12
6 AL 12
7 GND
8 REC 12
PB12V
AL12V
REC12V
PB
PB
TO VIDEO PCB
P89
Y-FM
CHROMA LOW
8 Y-PB
7 GND
6 C-PB
5 GND
4 C-REC
3 GND
2 Y-REC
1 GND
REC
REC
REC12
TR16
EF
B/W
COLOR
DC DET
OUT PUT
AMP
MIX
IC4 AN6307
NC NC DOC
TO SERVO PCB
AL12
P90
RL
A B C D E F G H I J K
1 2 3 4 5 6 7 8

VS-12 EG/EK
PRE AMP
BLOCK DIAGRAM
NO.7-7 831110B

VS-12EK/EG

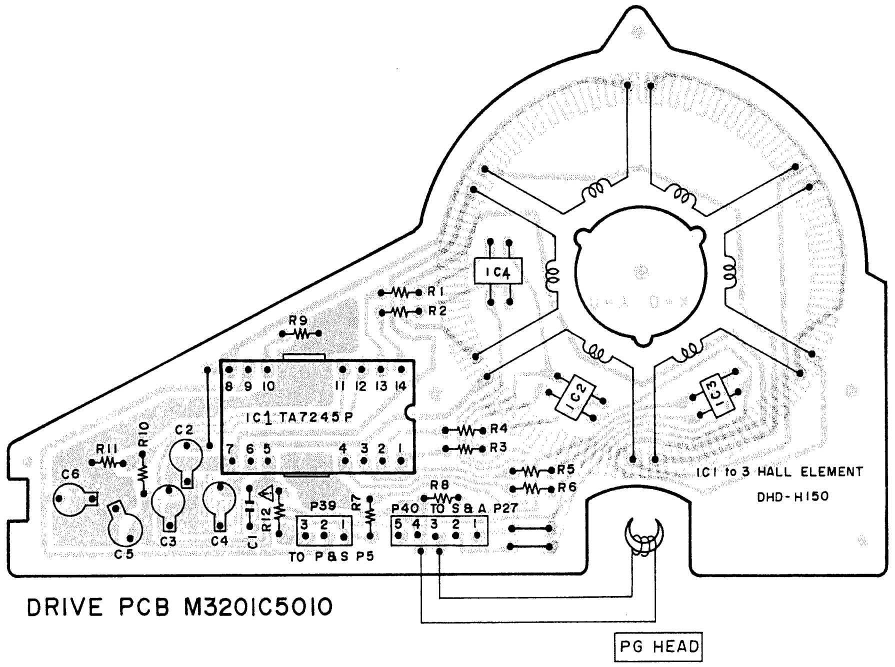

HIFI AUDIO PCB V1039A5010
AV PCB V1015D5150
V1039D5080
RELAY PCB V1039D5070
PREAMP PCB V1015A5070
CM DRIVE PCB V1015A501B
VIDEO PCB V1015A501A
SERVO PCB V1015B5040
MOTOR BLK BLM-40
DRIVE(2) PCB M3201C5010
PHONE JACK PCB V1039D5050
SLIDE SWITCH(2) PCB V1039D5120
LINEAR AUDIO PCB V1039B5020
BAR METER PCB
FE HEAD PCB V1017D5130
LED(3) PCB V1015A521C
OPERATION(3) PCB V1015A521A
POWER & SYSCON PCB V1039A5110
DEMODULATOR
RF. CONV BOOSTER
L SW(A) PCB V1017A518C
L SW(B) PCB V1017A518B
RS SW PCB V1017A518D
MECHA DRIVE PCB V1017A518A
SENSOR(L) PCB V1015D5200
SENSOR(R) PCB V1015D2350
HALL IC(R) PCB V1017D5070
HALL IC(L) PCB V1017D5060
POWER FILTER PCB V1017D5060
VOLTAGE SELECTOR
AC INLET
EG
EK
2SD661
PN2025

WARNING ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY.
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S
RECOMMENDED PARTS

AVERTISSEMENT ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SECURITE
POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL.
NE REMPLACER QUE DES PIECES RECOMMANDEES PAR LE FABRICANT

001548

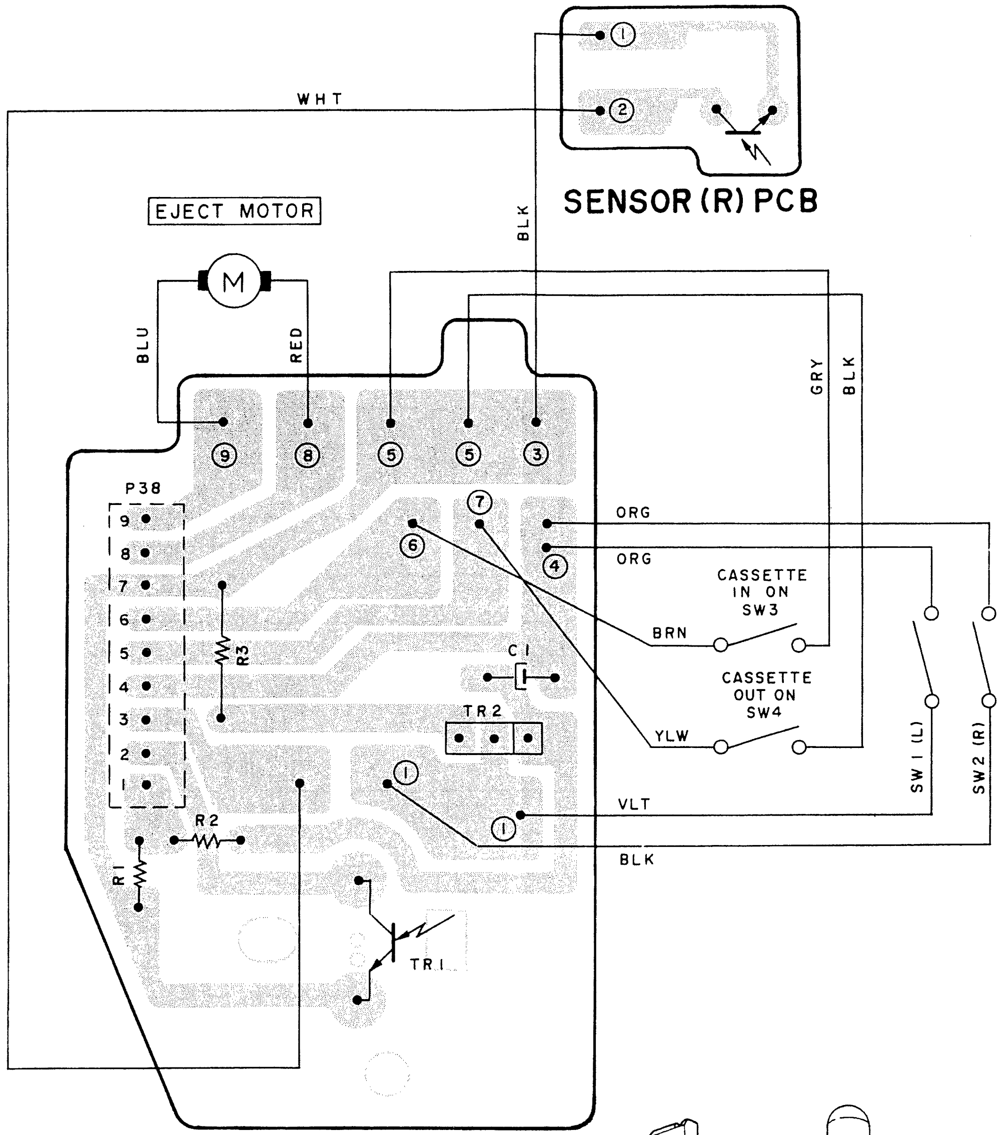
VS-12EK/EG
CONNECTION DIAGRAM
NO. 14-1 840706A


IC4
R1
R2
R9
8 9 10 11 12 13 14
IC1 TA7245P
7 6 5 4 3 2 1
R4
R3
R5
R6
R8
R11
R10
C2
C6
C5
C3
C4
C1
R12
P39
3 2 1
TO P&S P5
R7
P40 TO S&A P27
5 4 3 2 1
IC2
IC3
IC1 to 3 HALL ELEMENT
DHD-H150
PG HEAD

DRIVE PCB M3201C5010

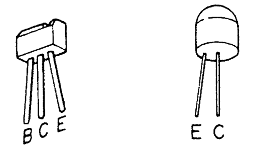
WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY,
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S
RECOMMENDED PARTS

AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ.
POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL,
NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

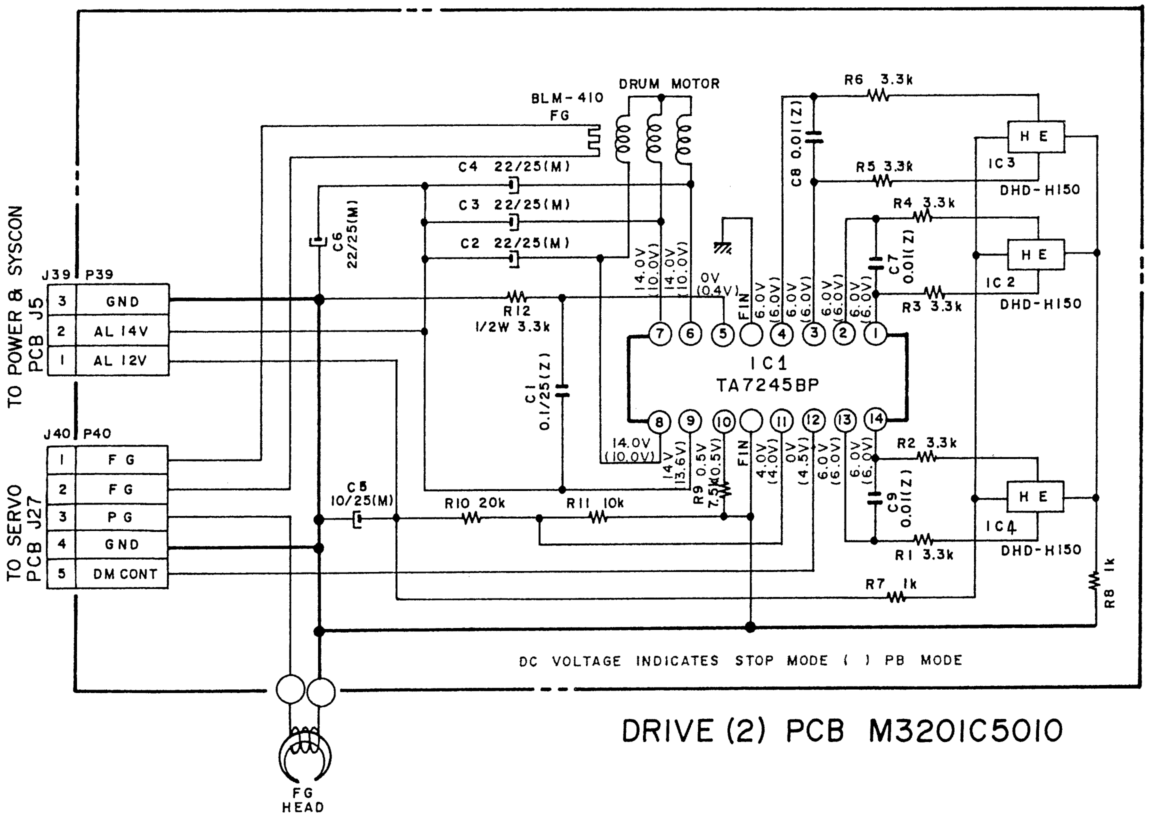

①
②
WHT
BLK
EJECT MOTOR
M
BLU
RED
⑨
⑧
⑤
⑤
③
GRY
BLK
P38
9
8
7
6
5
4
3
2
1
R3
⑦
⑥
④
ORG
ORG
CASSETTE IN ON SW3
BRN
C1
TR2
CASSETTE OUT ON SW4
YLW
SW1 (L)
SW2 (R)
①
①
VLT
BLK
R2
R1
TR1

SENSOR (R) PCB

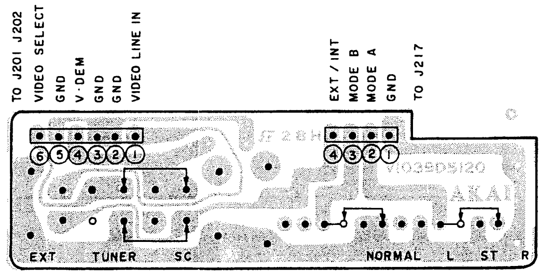
SENSOR (L) PCB
V1015D5200



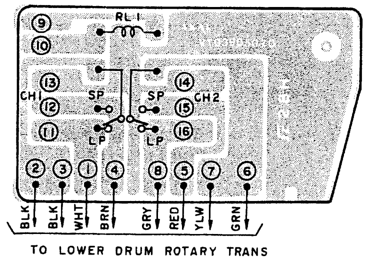
2SD661 PN202S


TO POWER & SYSCON PCB J5
J39
P39
3 GND
2 AL 14V
1 AL 12V
TO SERVO PCB J27
J40
P40
1 F G
2 F G
3 P G
4 GND
5 DM CONT
C6 22/25(M)
BLM-410
FG
DRUM MOTOR
C4 22/25(M)
C3 22/25(M)
C2 22/25(M)
R12 1/2W 3.3k
C1 0.1/25(Z)
14.0V (10.0V)
14.0V (10.0V)
0V (0.4V)
FIN
6.0V (6.0V)
6.0V (6.0V)
6.0V (6.0V)
6.0V (6.0V)
IC1
TA7245BP
14.0V (10.0V)
14V (13.6V)
0.5V (0.5V)
R9 7.5k
FIN
4.0V (4.0V)
0V (4.5V)
6.0V (6.0V)
6.0V (6.0V)
C8 0.01(Z)
R6 3.3k
R5 3.3k
H E
IC3
DHD-H150
R4 3.3k
C7 0.01(Z)
R3 3.3k
H E
IC2
DHD-H150
R2 3.3k
C9 0.01(Z)
R1 3.3k
H E
IC4
DHD-H150
C5 10/25(M)
R10 20k
R11 10k
R7 1k
R8 1k
DC VOLTAGE INDICATES STOP MODE ( ) PB MODE
FG HEAD

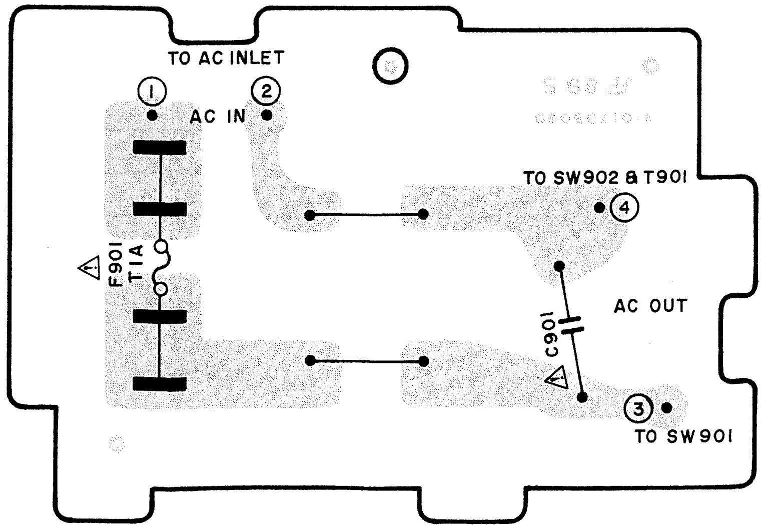
DRIVE (2) PCB M3201C5010


TO J201 J202
VIDEO SELECT
GND
V·DEM
GND
GND
VIDEO LINE IN
⑥⑤④③②①
EXT / INT
MODE B
MODE A
GND
TO J217
④③②①
V1039D5120
AKAI
EXT
TUNER
SC
NORMAL
L
ST
R

SLIDE SW PCB V1039D5120

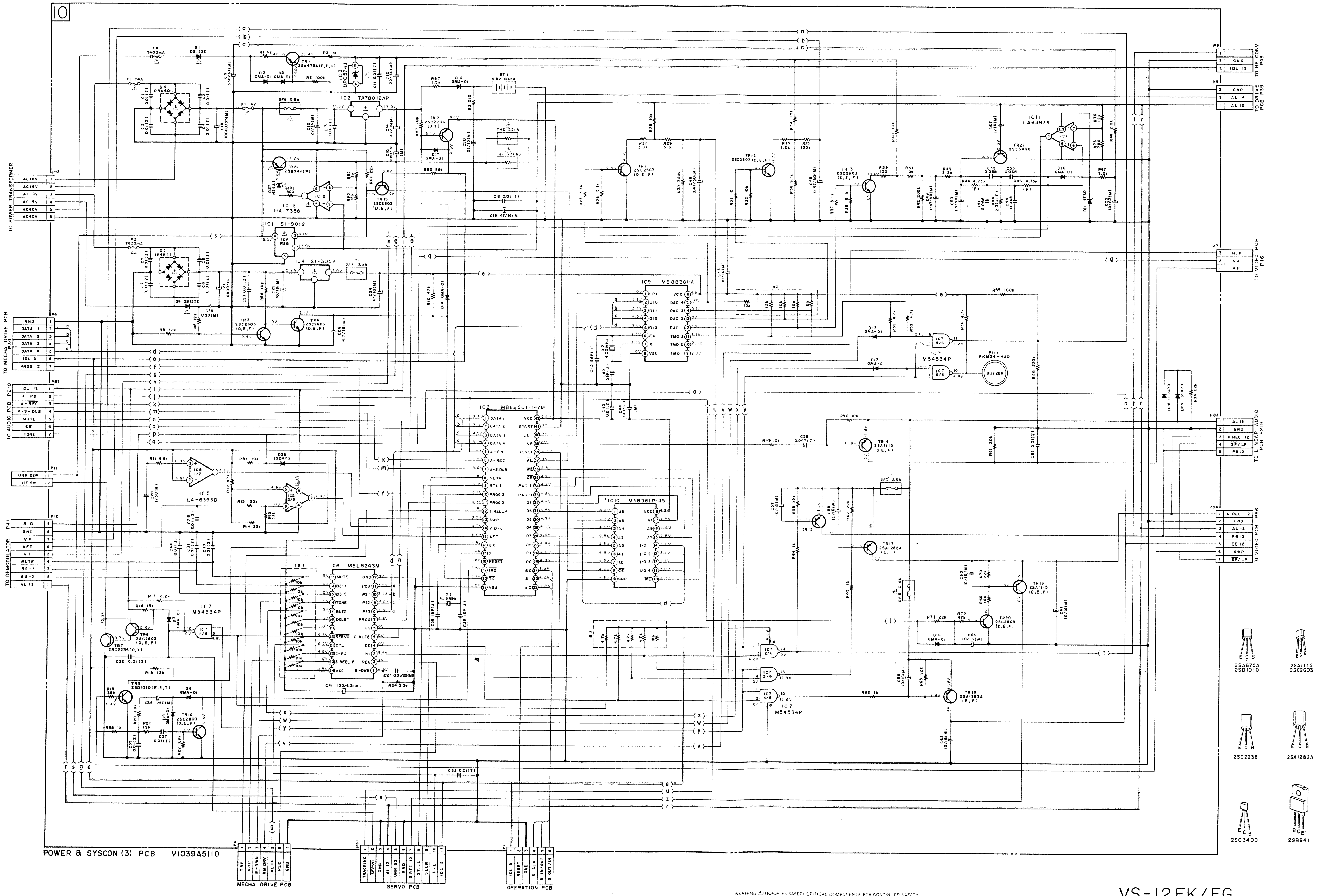

⑨
⑩
RL1
⑬
CH1
⑫
⑪
SP
LP
SP
LP
⑭
CH2
⑮
⑯
② ③ ① ④ ⑧ ⑤ ⑦ ⑥
BLK
BLK
WHT
BRN
GRY
RED
YLW
GRN
TO LOWER DRUM ROTARY TRANS

RELAY PCB V1039D5070


TO AC INLET
①
②
AC IN
F901 T1A
TO SW902 & T901
④
AC OUT
C901
③
TO SW901

POWER FILTER PCB V1017D5060

VS-12EK/EG



10
P13
AC18V
AC18V
AC 9V
AC 9V
AC40V
AC40V
TO POWER TRANSFORMER
P4
GND
DATA 1
DATA 2
DATA 3
DATA 4
IDL 5
PROG 2
TO MECHA DRIVE PCB
P82
IDL 12
A-PB
A-REC
A-S-DUB
MUTE
EE
TONE
TO AUDIO PCB P218
P11
UNR 22W
HT SW
P10
5.0
GND
V F
AFT
V T
MUTE
BS-1
BS-2
AL 12
TO DEMODULATOR P41
IC1 SI-9012
IC2 TA78012AP
IC3 UPC574J
IC4 SI-3052
IC5 LA-6393D
IC6 MBL8243M
IC7 M54534P
IC8 MB88501-147M
IC9 MB88301-A
IC10 M58981P-45
IC11 LA6393S
IC12 HA17358
BU1 PKM24-440
BUZZER
BT1 4.8V 50mA
X1 4.19MHz
X2 400kHz
TR1 2SA673A(E,F,H)
TR2 2SC2236 (O,Y)
TR3 2SC2603 (D,E,F)
TR4 2SC2603 (D,E,F)
TR7 2SC2236(O,Y)
TR8 2SC2603 (D,E,F)
TR9 2SD1010(R,S,T)
TR10 2SC2603 (D,E,F)
TR11 2SC2603 (D,E,F)
TR12 2SC2603(D,E,F)
TR13 2SC2603 (D,E,F)
TR14 2SA1115 (D,E,F)
TR15
TR16 2SC2603 (D,E,F)
TR17 2SA1282A (E,F)
TR18 2SA1282A (E,F)
TR19 2SA1115 (D,E,F)
TR20 2SC2603 (D,E,F)
TR21 2SC3400
TR22 2SB941(P)
F1 T4A
F2 A2
F3 T630mA
F4 T400mA
SF5 0.6A
SF6 0.6A
SF7 0.6A
SF8 0.6A
P9
GND
IDL 12
TO RF CONV P43
P5
GND
AL 14
AL 12
TO DRIVE PCB P38
P7
H.P
V J
V P
TO VIDEO PCB P76
P83
AL12
GND
V REC 12
SP/LP
PB12
TO LINEAR AUDIO PCB P218
P84
V REC 12
GND
AL 12
PB 12
EE 12
SWP
SP/LP
TO VIDEO PCB P86
E C B
2SA675A
2SD1010
2SA1115
2SC2603
2SC2236
2SA1282A
E C B
2SC3400
B C E
2SB941
POWER & SYSCON (3) PCB V1039A5110
P6
TRP
SRP
B-DWN
AL 14
REC
GND
MECHA DRIVE PCB
P81
TRACKING
SERVO
GND
AL 12
UNR 22
GND
S.REC 12
STILL
SLOW
CTL
IDL 5
SERVO PCB
P1
IDL 5
RESET
GND
S CLK
S IN/OUT
S OUT/IN
OPERATION PCB

+B (POWER SUPPLY) LINE

WARNING ⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SECURITÉ POUR MAINTENIR LE DEGRÉ DE SECURITÉ DE L'APPAREIL NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

NOTE

UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN µF 50WV(J)

VS-12EK/EG
POWER & SYSCON
SCHEMATIC DIAGRAM

NO. 14-2 840707A

3C

001549

LOCATION OF COMPONENTS

IC'S

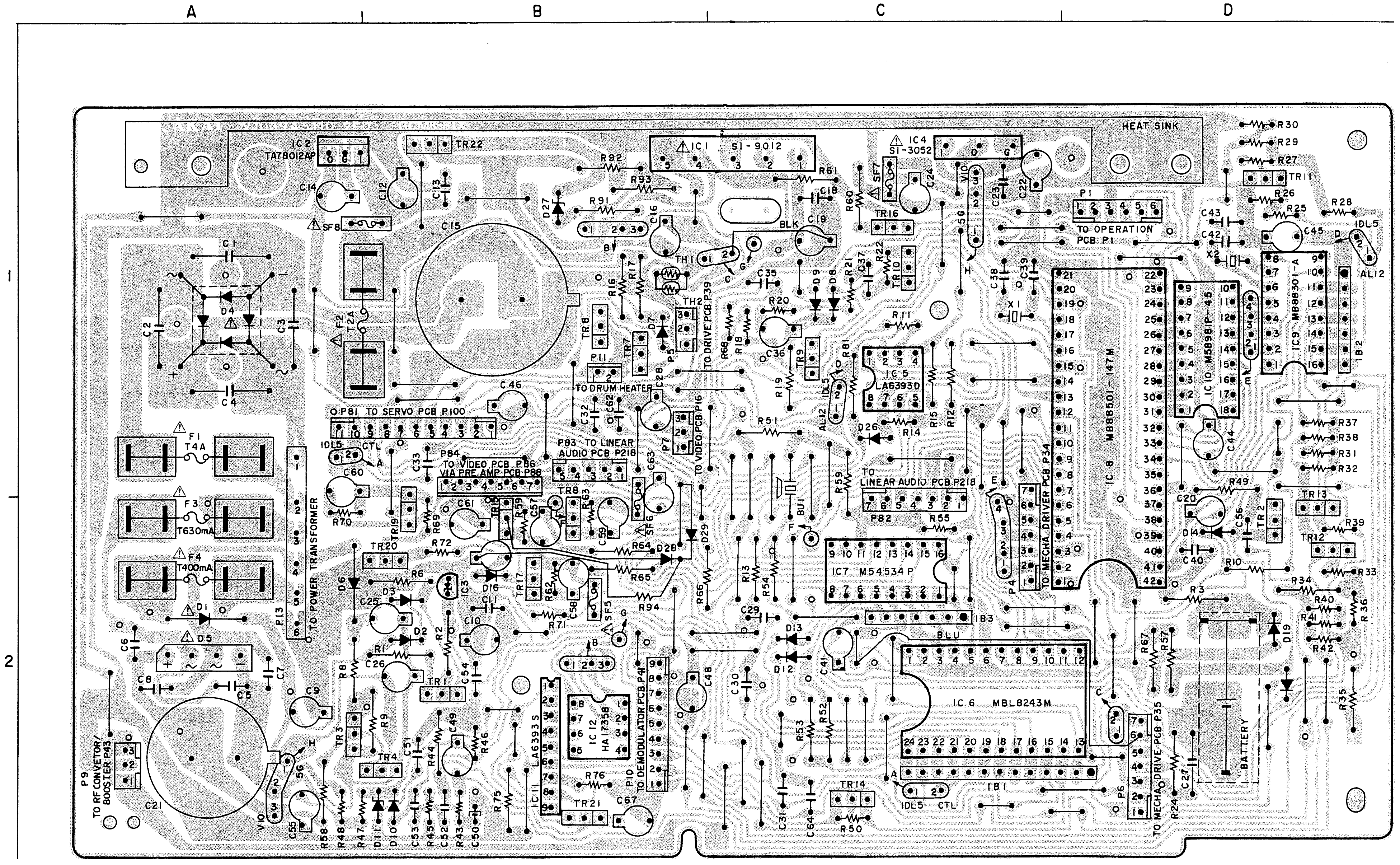
IC 1	B1,C1
IC 2	A1
IC 3	B2
IC 4	C1
IC 5	C1
IC 6	C2
IC 7	C2
IC 8	D1,D2
IC 9	D1
IC 10	D1
IC 11	B2
IC 12	B2

TR'S

TR 1	B2
TR 2	D2
TR 3	A2
TR 4	A2,B2
TR 7	B1
TR 8	B1
TR 9	C1
TR 10	C1
TR 11	D1
TR 12	D2
TR 13	D2
TR 14	C2
TR 15	B2
TR 16	C1
TR 17	B2
TR 18	B2
TR 19	B2
TR 20	A2,B2
TR 21	B2
TR 22	B1

CONNECTORS

P 1	C1,D1
P 4	C1,C2
P 5	B1
P 6	D2
P 7	B1
P 9	A2
P 10	B2
P 11	B1
P 13	A2
P 81	B1
P 82	C1,C2
P 83	B1
P 84	B1,B2

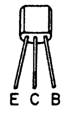

A
B
C
D
1
2
HEAT SINK
IC2 TA78012AP
TR22
IC1 SI-9012
IC4 SI-3052
TO OPERATION PCB P1
TO SERVO PCB P100
TO DRUM HEATER
P83 TO LINEAR AUDIO PCB P218
P84 TO VIDEO PCB P86 VIA PRE AMP PCB P88
TO DRIVE PCB P39
TO VIDEO PCB P16
TO LINEAR AUDIO PCB P218
IC5 LA6393D
IC7 M54534P
IC8 MB88501-147M
IC10 M58981P-45
IC9 MB88301-A
TO MECHA DRIVER PCB P34
IC6 MBL8243M
IC11 LA6393S
IC12 HA17358
TO DEMODULATOR PCB P41
TO MECHA DRIVE PCB P35
BATTERY
TO POWER TRANSFORMER
F1 T4A
F3 T630mA
F4 T400mA
F2 T2A
P9 TO RF CONVETOR/BOOSTER P43
IB1
IB2
IB3
BLK
BLU

POWER & SYSCON PCB V1039A5110 (2ED)

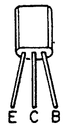
TR 1	2SA675A (E,F,H)
TR2,7	2SC2236 (O,Y)
TR3,4,8,10 to 13,16,20	2SC2603 (D,E,F)
TR9	2SD1010 (R,S,T)
TR14, 19	2SA1115 (D,E,F)
TR 15, 17, 18	2SA1282A (E.F)
TR 21	2SC3400
TR 22	2SB941

B ■●● PNP TRANSISTOR

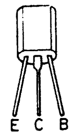
B ●●● NPN TRANSISTOR



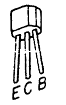
2SA675A
2SD1010



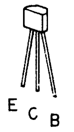
2SC2236



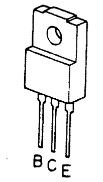
2SA1282A



2SC2603
2SA1115

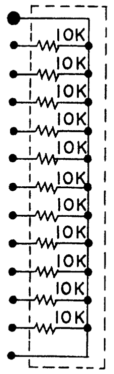


2SC3400

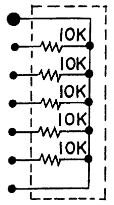


2SB941

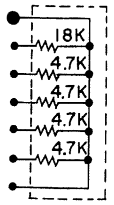
IB1
10K x 11


10K
10K
10K
10K
10K
10K
10K
10K
10K
10K
10K

IB2
10K x 5

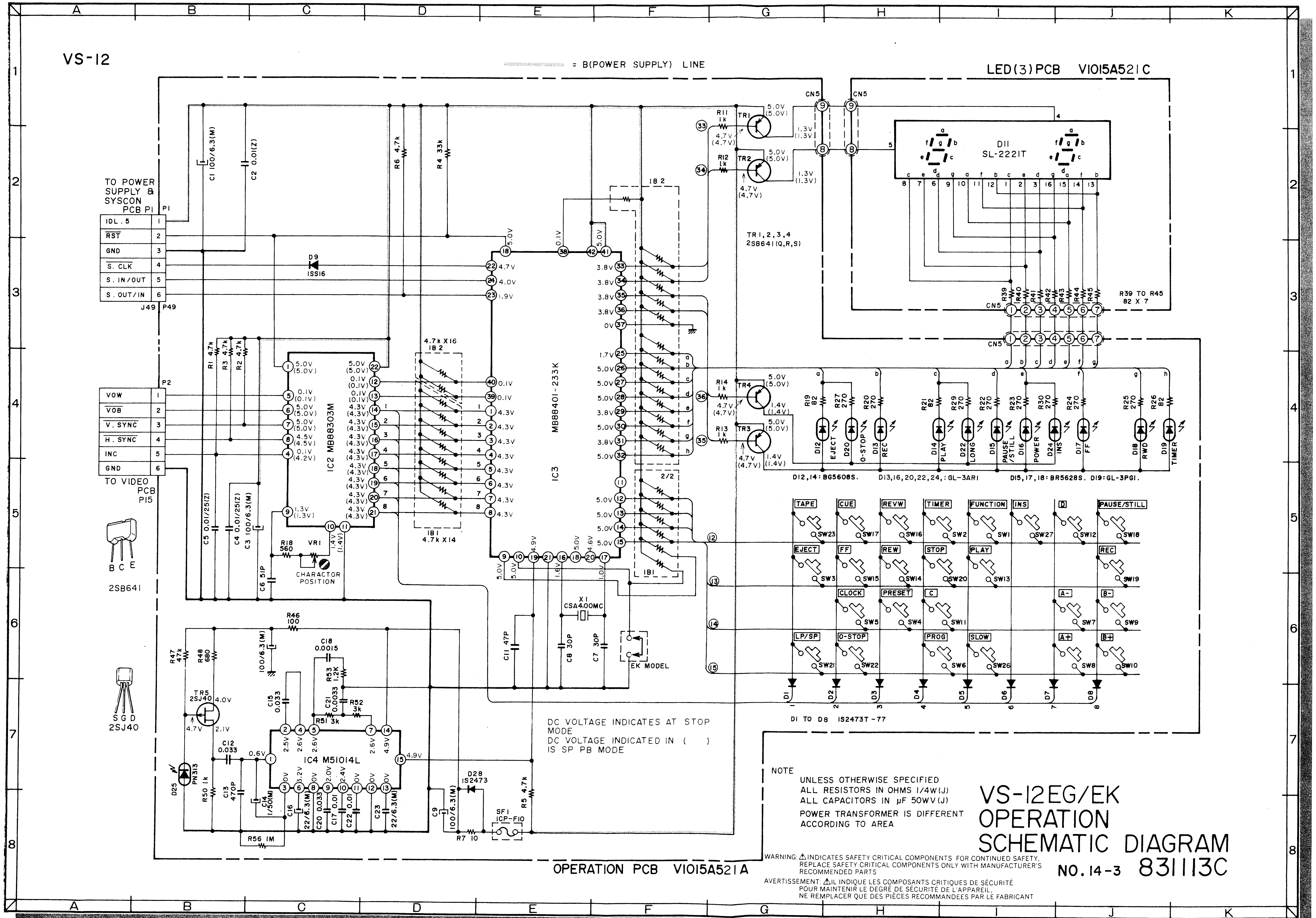

10K
10K
10K
10K
10K

IB3
4.7K x 4 + 18K x 1


18K
4.7K
4.7K
4.7K
4.7K

WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY.
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S
RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ.
POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL,
NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT


VS-12
= B(POWER SUPPLY) LINE
LED(3) PCB V1015A521C
TO POWER SUPPLY & SYSCON PCB P1
IDL. 5
RST
GND
S. CLK
S. IN/OUT
S. OUT/IN
J49 P49
P1
P2
VOW
VOB
V. SYNC
H. SYNC
INC
GND
TO VIDEO PCB P15
B C E
2SB641
S G D
2SJ40
IC2 MB88303M
IC3 MB88401-233K
IC4 M51014L
D11 SL-2221T
TR1,2,3,4 2SB641(Q,R,S)
TR5 2SJ40
D9 1SS16
D28 1S2473
D25 PN313
X1 CSA4.00MC
SF1 ICP-F10
VR1 CHARACTOR POSITION
EK MODEL
4.7k X16 1B 2
1B1 4.7k X14
R39 TO R45 82 X 7
CN5
D12,14: BG5608S. D13,16,20,22,24,: GL-3AR1 D15,17,18: BR5628S. D19: GL-3PG1.
EJECT
O-STOP
REC
PLAY
LONG
PAUSE /STILL
POWER
INS
FF
RWD
TIMER
TAPE
CUE
REVW
TIMER
FUNCTION
INS
PAUSE/STILL
EJECT
FF
REW
STOP
PLAY
REC
CLOCK
PRESET
C
A-
B-
LP/SP
O-STOP
PROG
SLOW
A+
B+
D1 TO D8 1S2473T-77
DC VOLTAGE INDICATES AT STOP MODE
DC VOLTAGE INDICATED IN ( ) IS SP PB MODE
OPERATION PCB V1015A521A

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN μF 50WV(J)
POWER TRANSFORMER IS DIFFERENT
ACCORDING TO AREA

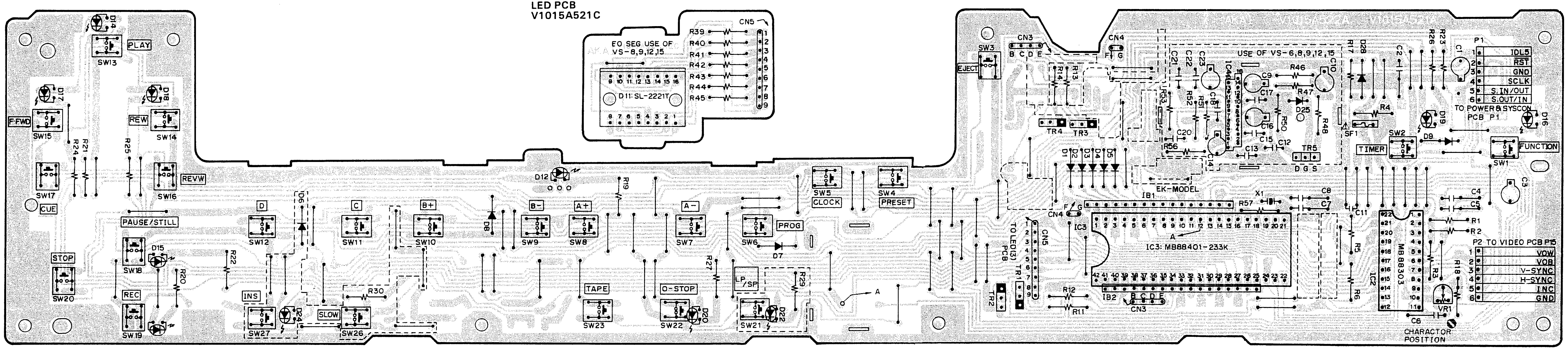
VS-12EG/EK OPERATION SCHEMATIC DIAGRAM

NO. 14-3 831113C

WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

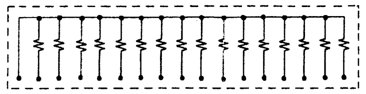
AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

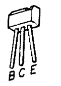
LED PCB
V1015A521C


CN5
R39
R40
R41
R42
R43
R44
R45
EO SEG USE OF VS-8,9,12,15
D11: SL-2221T
PLAY
SW13
D14
D17
D18
F.FWD
SW15
REW
SW14
R24
R21
R25
SW17
REVW
SW16
CUE
PAUSE/STILL
STOP
SW20
SW18
D15
R20
R22
REC
SW19
INS
SW27
D24
SLOW
SW26
R30
D
SW12
D6
C
SW11
B+
SW10
D8
B−
SW9
A+
SW8
D12
R19
TAPE
SW23
A−
SW7
O-STOP
SW22
D20
R27
SW6
PROG
D7
LP/SP
SW21
D22
R29
SW5
CLOCK
SW4
PRESET
A
TO LED(3) PCB
TR1
TR2
CN5
SW3
EJECT
CN3
CN4
R14
R13
TR4
TR3
D1
D2
D3
D4
D5
C21
C22
C23
R53
R52
R51
C18
C20
R56
C14
IC4
USE OF VS-6,8,9,12,15
C9
R46
C10
C17
R47
D25
R50
R48
C16
C15
C13
C12
TR5
D G S
EK-MODEL
IB1
R57
X1
C8
C7
IC3
IC3: MB88401-233K
IB2
R12
R11
R17
D28
SF1
R4
C2
R26
R23
C1
P1
IDL5
RST
GND
SCLK
S.IN/OUT
S.OUT/IN
TO POWER & SYSCON PCB P1
D19
D16
SW2
TIMER
D9
FUNCTION
SW1
C3
C4
C5
C11
R1
R2
R5
R6
IC2
MB88303
R3
R18
P2 TO VIDEO PCB P15
VOW
VOB
V-SYNC
H-SYNC
INC
GND
VR1
C6
CHARACTOR POSITION

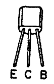
OPERATION PCB V1015A521A

IB1 4.7KΩ x 15
IB2 4.7KΩ x 16





2SB641



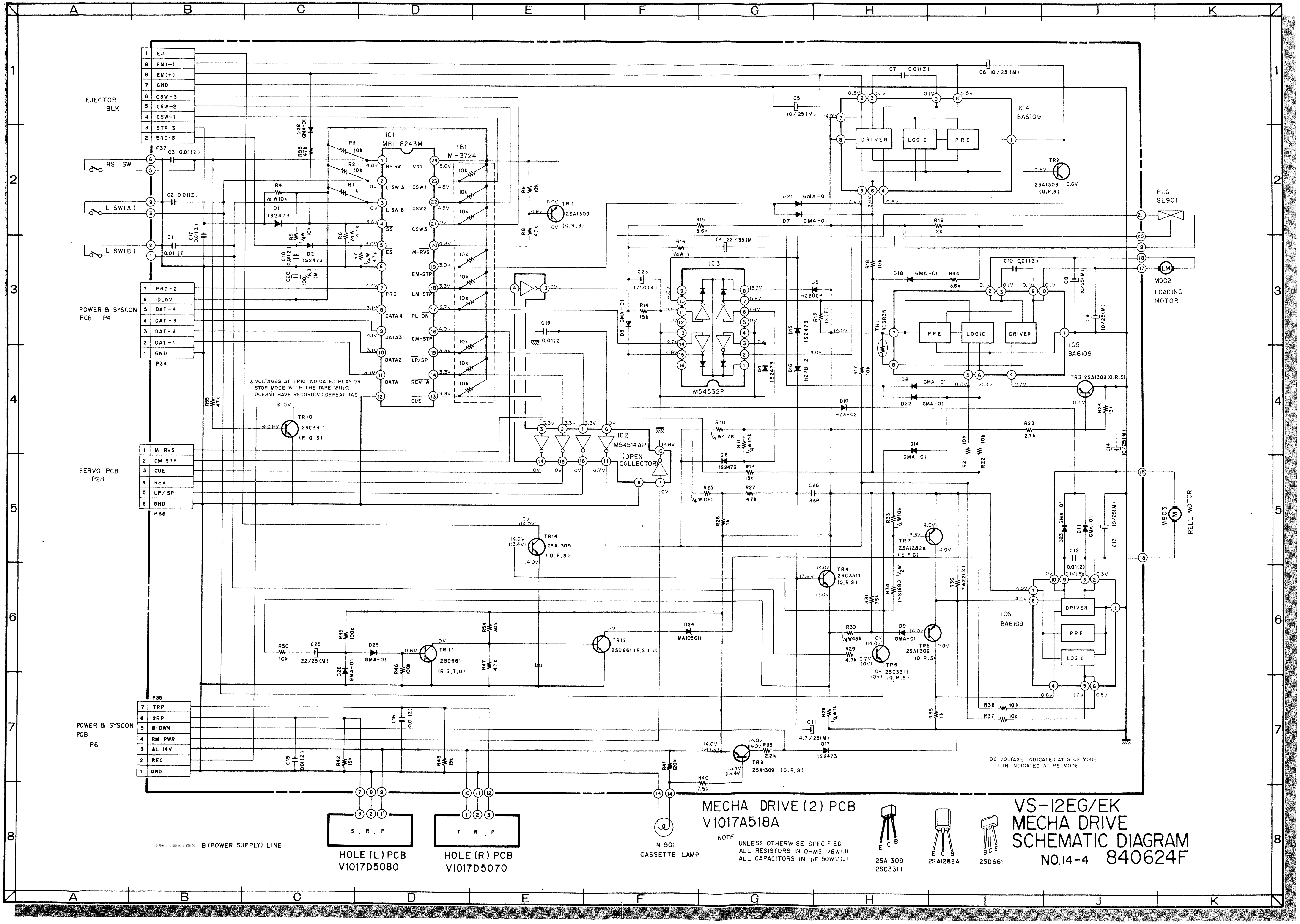
2SJ40

TR1 to 4 .... 2SB641
TR5 .... 2SJ40

▣ • • = PNP TRANSISTOR

WARNING ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY.
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S
RECOMMENDED PARTS

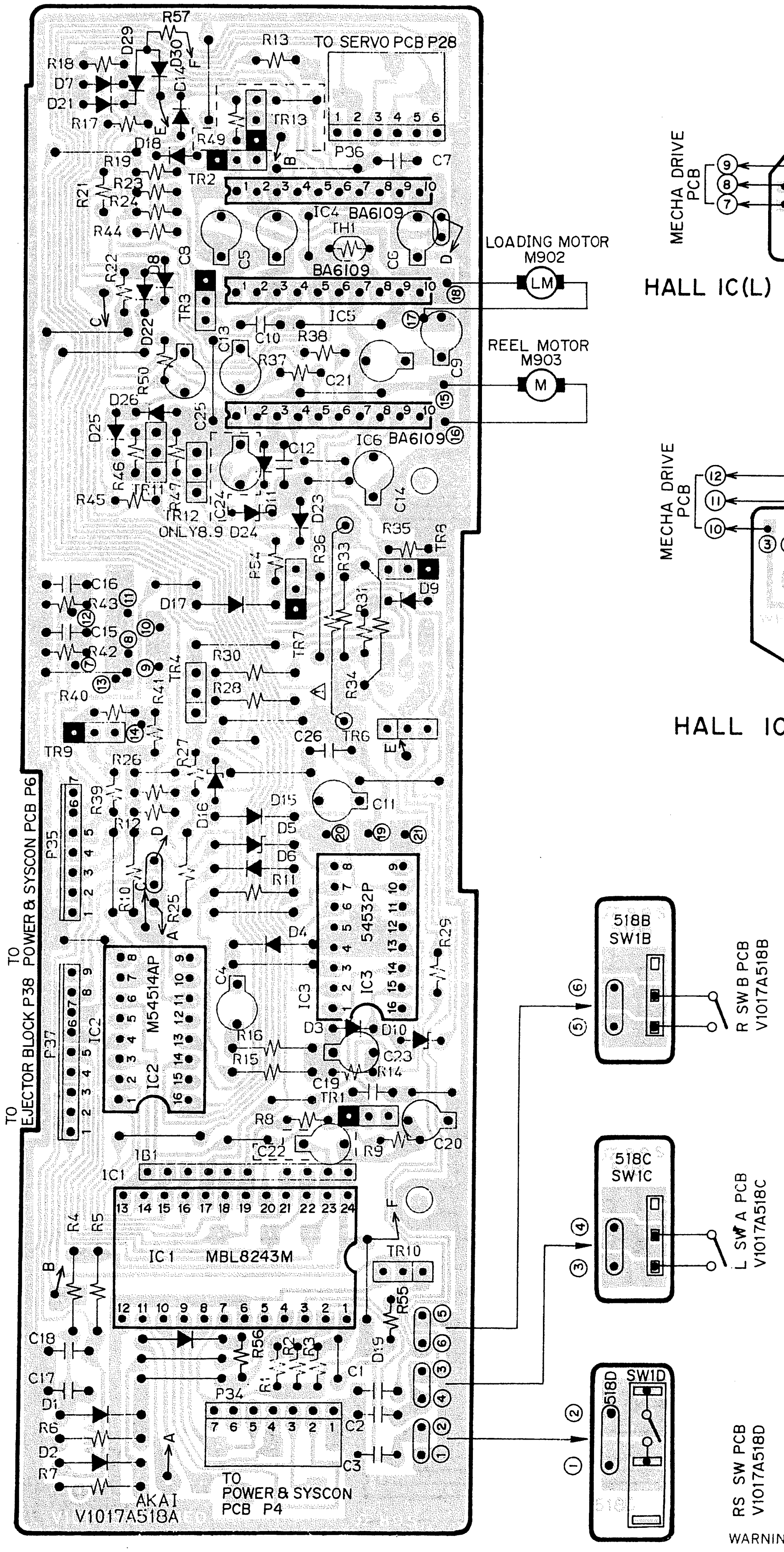
AVERTISSEMENT ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ.
POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL.
NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT


EJECTOR BLK
EJ
EM(−)
EM(+)
GND
CSW-3
CSW-2
CSW-1
STR·S
END·S
P37
RS SW
L SW(A)
L SW(B)
POWER & SYSCON PCB P4
PRG-2
IDL5V
DAT-4
DAT-3
DAT-2
DAT-1
GND
P34
SERVO PCB P28
M RVS
CM STP
CUE
REV
LP/SP
GND
P36
POWER & SYSCON PCB P6
P35
TRP
SRP
B·DWN
RM PWR
AL 14V
REC
GND
IC1 MBL 8243M
IB1 M-3724
RS SW
L SW A
L SW B
SS
ES
PRG
DATA4
DATA3
DATA2
DATA1
VDD
CSW1
CSW2
CSW3
M-RVS
EM-STP
LM-STP
PL-ON
CM-STP
LP/SP
REV W
CUE
TR1 2SA1309 (Q.R.S)
IC2 M54514AP (OPEN COLLECTOR)
IC3 M54532P
IC4 BA6109
IC5 BA6109
IC6 BA6109
DRIVER
LOGIC
PRE
TR2 2SA1309 (Q.R.S)
TR3 2SA1309(Q.R.S)
TR4 2SC3311 (Q.R.S)
TR6 2SC3311 (Q.R.S)
TR7 2SA1282A (E.F.G)
TR8 2SA1309 (Q.R.S)
TR9 2SA1309 (Q.R.S)
TR10 2SC3311 (R.Q.S)
TR11 2SD661 (R.S.T.U)
TR12 2SD661 (R.S.T.U)
TR14 2SA1309 (Q.R.S)
TH1 803R3N
PLG SL901
M902 LOADING MOTOR
M903 REEL MOTOR
※ VOLTAGES AT TR10 INDICATED PLAY OR STOP MODE WITH THE TAPE WHICH DOESN'T HAVE RECORDING DEFEAT TAB
IN 901 CASSETTE LAMP
S.R.P
T.R.P
HOLE (L) PCB V1017D5080
HOLE (R) PCB V1017D5070
B (POWER SUPPLY) LINE
2SA1309 2SC3311
2SA1282A
2SD661
E C B
B C E
DC VOLTAGE INDICATED AT STOP MODE ( ) IN INDICATED AT PB MODE
A
B
C
D
E
F
G
H
I
J
K
1
2
3
4
5
6
7
8

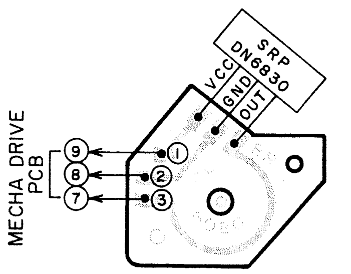
MECHA DRIVE (2) PCB
V1017A518A

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W(J)
ALL CAPACITORS IN µF 50WV(J)

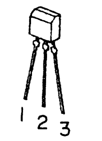
VS-12EG/EK
MECHA DRIVE
SCHEMATIC DIAGRAM
NO.14-4 840624F


TO SERVO PCB P28
LOADING MOTOR M902
REEL MOTOR M903
IC4 BA6109
IC5
IC6 BA6109
IC3 54532P
IC2 M54514AP
IC1 MBL8243M
TO EJECTOR BLOCK P38 POWER & SYSCON PCB P6
TO POWER & SYSCON PCB P4
AKAI V1017A518A
518B SW1B
R SW B PCB V1017A518B
518C SW1C
L SW A PCB V1017A518C
518D SW1D
RS SW PCB V1017A518D

MECHA DRIVE PCB (3ED)
V1017A518A

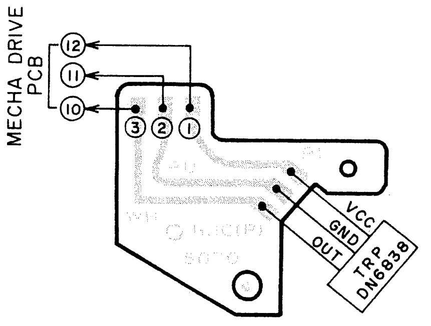

MECHA DRIVE PCB
VCC
GND
OUT
SRP DN6830

HALL IC(L) PCB V1017D5080



1 : VCC
2 : GND
3 : OUT

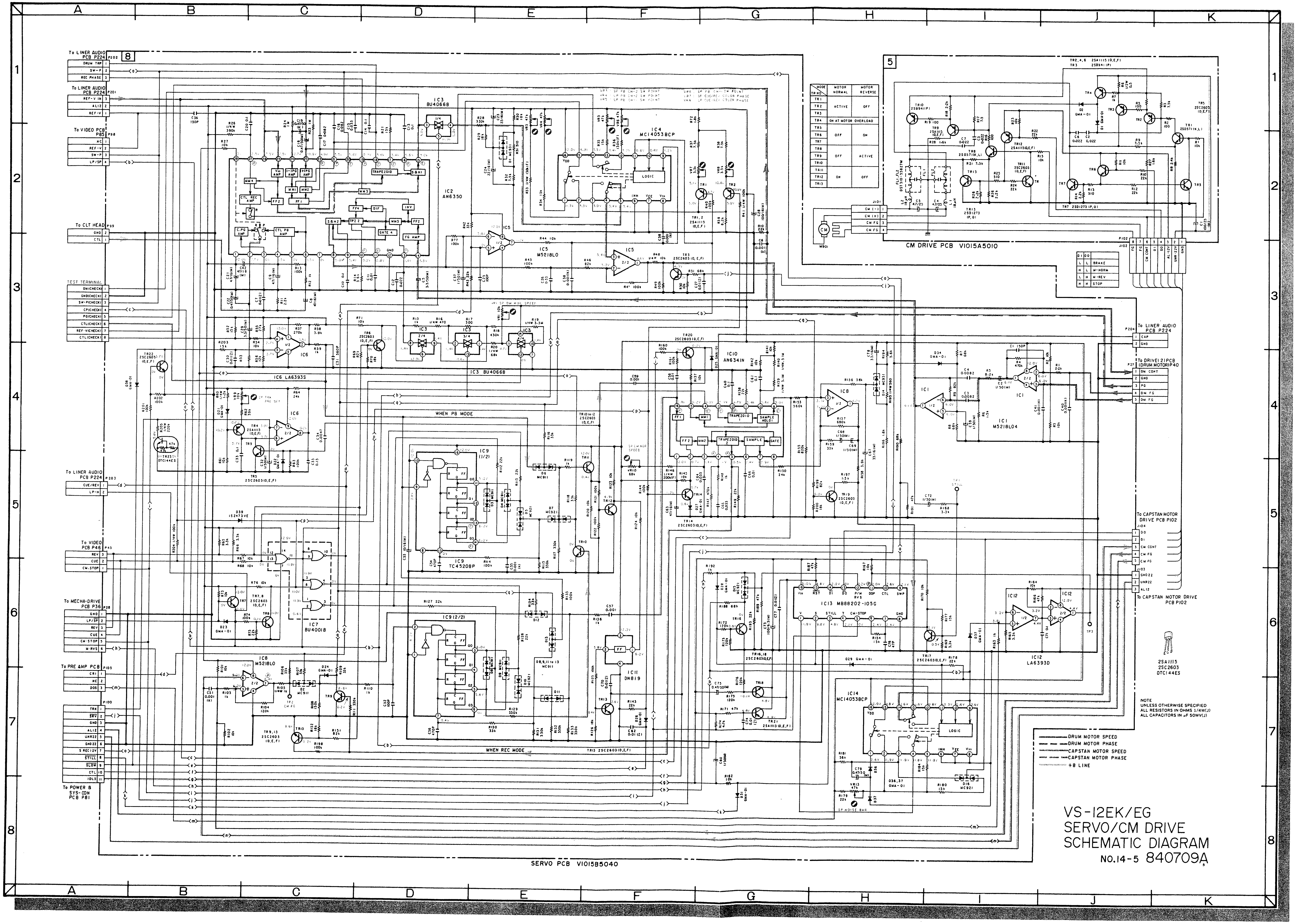
DN6838


MECHA DRIVE PCB
VCC
GND
OUT
TRP DN6838

HALL IC(R) PCB V1017D5070

WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT



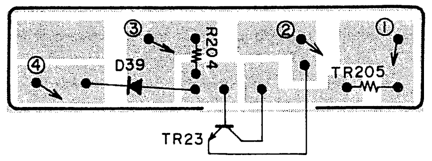
To LINER AUDIO PCB P224
P202
8
DRUM TAP
SW-P
REC PHASE
P201
REF-V IN
AL12
REF-V
To VIDEO PCB P85
P98
NC
REF-V
SW-P
LP/SP
To CTL HEAD
P99
GND
CTL
TEST TERMINAL
DM(CHECK)
GND(CHECK)
SW-P(CHECK)
CP(CHECK)
PG(CHECK)
CTL(CHECK)
REF V(CHECK)
CTL(CHECK)
P203
CUE/REV
LP-H
To VIDEO PCB P46
P45
REV
CUE
CM-STOP
To MECHA-DRIVE PCB P36
P28
GND
LP/SP
REV
CUE
CM-STOP
M-RVS
To PRE AMP PCB
P105
CRI
NC
DOS
P100
TRK
SRV
GND
AL12
UNR22
GND22
S REC12V
STILL
SLOW
CTL
IDL3
To POWER & SYS-CON PCB P81
IC3 BU4066B
IC2 AN6350
IC4 MC14053BCP
IC5 M5218L0
IC6 LA6393S
IC7 BU4001B
IC8 M5218L0
IC9 TC4520BP
IC10 AN6341N
IC11 DN819
IC13 MB88202-105G
IC14 MC14053BCP
IC1 M5218L04
IC12 LA6393D
WHEN PB MODE
WHEN REC MODE
SERVO PCB VI015B5040
5
CM DRIVE PCB VI015A5010
J101
CM (-)
CM (+)
CM FG
CM FG
M901
TR2,4,6 2SA1115 (D,E,F)
TR3 2SB941(P)
TR7 2SD1273 (P,Q)
P102
J102
FG
FG
CM CONT
D1
D0
AL-12V
UNR-22V
GND
P204
To LINER AUDIO PCB P224
CAP
GND
P27
To DRIVE(2)PCB (DRUM MOTOR)P40
DM CONT
GND
PG
DM FG
DM FG
To CAPSTAN MOTOR DRIVE PCB P102
J104
D0
D1
CM CONT
CM FG
CM FG
J103
GND22
UNR22
AL12
To CAPSTAN MOTOR DRIVE PCB P102
E C B
2SA1115
2SC2603
DTC144ES
DRUM MOTOR SPEED
DRUM MOTOR PHASE
CAPSTAN MOTOR SPEED
CAPSTAN MOTOR PHASE
+B LINE
A B C D E F G H I J K
1 2 3 4 5 6 7 8

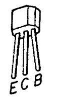
MODE / TR NO	MOTOR NORMAL	MOTOR REVERSE
TR1	ACTIVE	OFF
TR2		
TR3		
TR4	ON AT MOTOR OVERLOAD	
TR5	OFF	ON
TR6		
TR7		
TR8	OFF	ACTIVE
TR9		
TR10		
TR11	ON	OFF
TR12		
TR13		

D1	D0	
L	L	BRAKE
H	L	M-NORM
L	H	M-REV
H	H	STOP

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN µF 50WV(J)

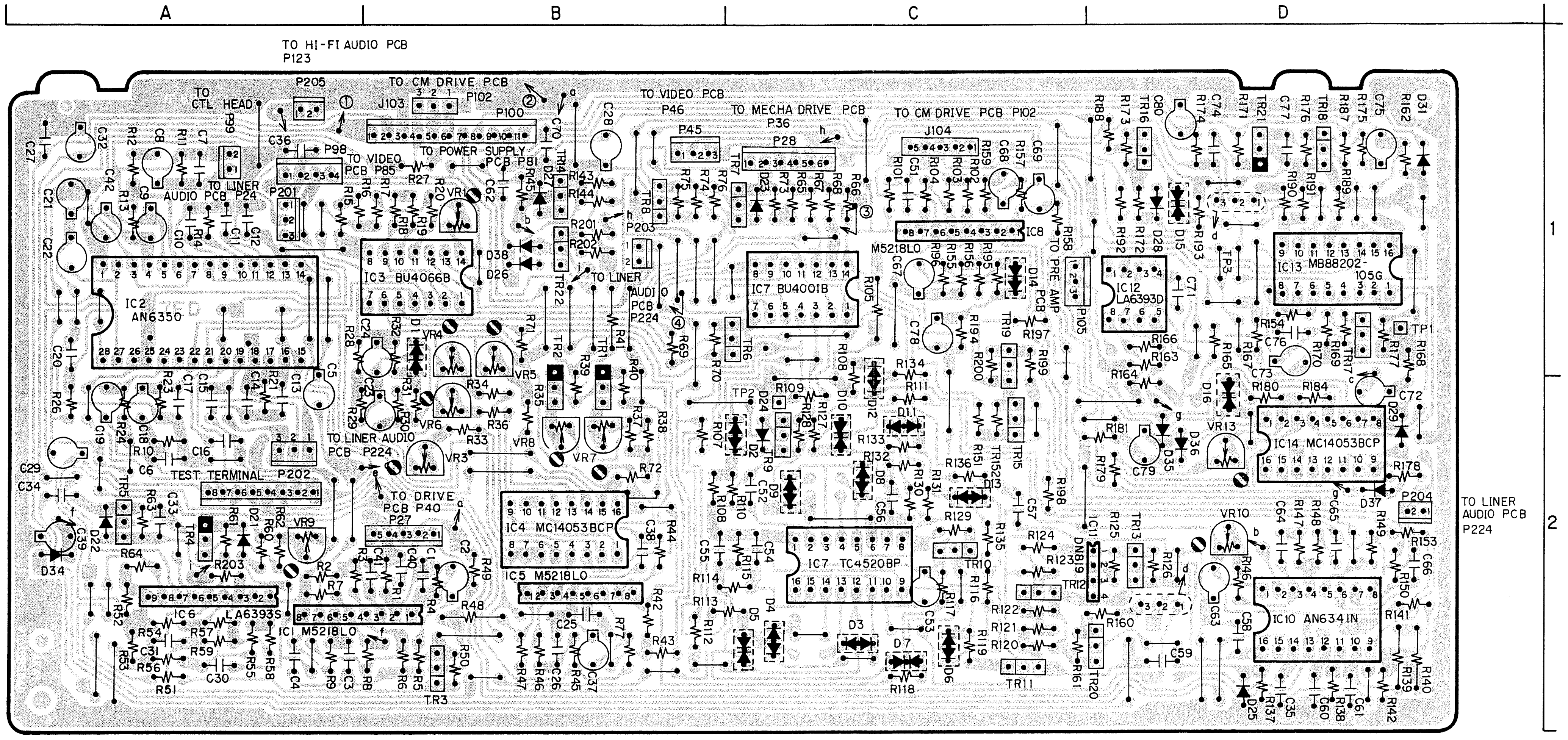
VS-12EK/EG
SERVO/CM DRIVE
SCHEMATIC DIAGRAM
NO.14-5 840709A


③
②
①
④
D39
R204
TR205
TR23



28A1115
2SC2603
DTC144ES

TR1, 2, 4, 21	2SA1115 (D, E, F)
TR3, 5 to 20, 22	2SC2603 (D, E, F)
TR23	DTC144ES


A
B
C
D
1
2
TO HI-FI AUDIO PCB
P123
P205
TO CM DRIVE PCB
J103
P102
P100
TO CTL HEAD
P99
P98
TO VIDEO PCB P85
TO POWER SUPPLY PCB P81
TO LINER AUDIO PCB P24
P201
TO VIDEO PCB
P46
P45
TO MECHA DRIVE PCB
P36
P28
TO CM DRIVE PCB P102
J104
P203
TO LINER AUDIO PCB P224
TO PRE AMP PCB
P105
IC2 AN6350
IC3 BU4066B
IC7 BU4001B
IC8 M5218LO
IC12 LA6393D
IC13 MB88202-105G
IC14 MC14053BCP
IC4 MC14053BCP
IC5 M5218LO
IC7 TC4520BP
IC6 LA6393S
IC1 M5218LO
IC10 AN6341N
VR1
VR3
VR4
VR5
VR6
VR7
VR8
VR9
VR10
VR13
TEST TERMINAL P202
TO LINER AUDIO PCB P224
TO DRIVE PCB P40
P27
P204
TO LINER AUDIO PCB
P224
TP1
TP2
TP3

SERVO PCB V1015B5040(7ED)

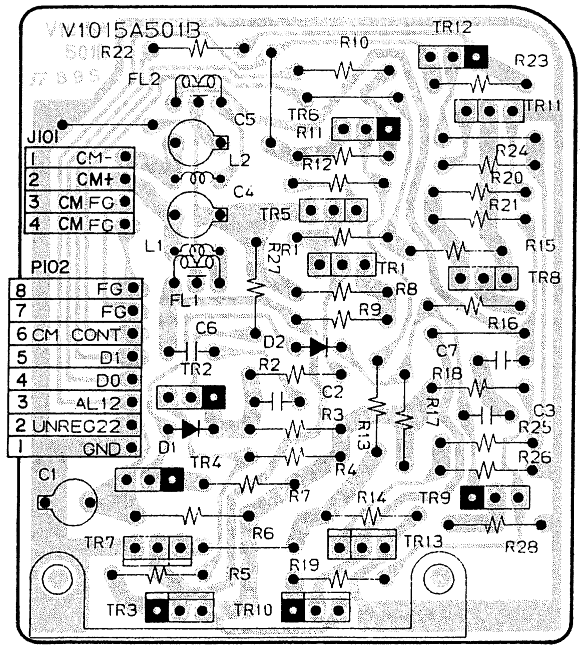
LOCATION OF COMPONENTS

VR1	SP Drum Moter Normal Speed
VR3	SP CH-2 PB Switching Point
VR4	LP CH-2PB Switching Point
VR5	LP CH-1PB Switching Point
VR6	SP CH-1PB Switching Point
VR7	SP CUE/REV Color Phase
VR8	LP CUE/REV Color Phase
VR9	SP Tracking Preset
VR10	SP Capstun Motor Normal
VR13	SP Noise Bar Speed

IC	
IC1	A2, B2
IC2	A1
IC3	B1
IC4, 5	B2
IC6	A2
IC7, 8	C1
IC9	C2
IC10, 11	D2
IC12, 13	D1
IC14	D2

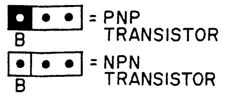
TR	
TR1 to3	B2
TR4, 5	A2
TR6, 7	C1
TR8	B1
TR9 to 12	C2
TR13	D2
TR14	B1
TR15	C2
TR16 to 18	D1
TR19	C1
TR20	D2
TR21	D1
TR22	B1
TR23	A1 (other PCB)

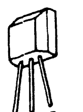
TERMINAL	
P27	B2
P28	C1
P45	B1
P98, 99	A1
P100	B1
P105	C1
P201	A1
P202	A2
P203	B1
P204	D2
P205	A1
J103	B1
J104	C1
TEST TERMINAL	A2


V1015A501B
J101
1 CM-
2 CM+
3 CM FG
4 CM FG
P102
8 FG
7 FG
6 CM CONT
5 D1
4 D0
3 AL12
2 UNREC22
1 GND
TR1
TR2
TR3
TR4
TR5
TR6
TR7
TR8
TR9
TR10
TR11
TR12
TR13
FL1
FL2
L1
L2
D1
D2
C1
C2
C3
C4
C5
C6
C7

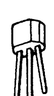
CM DRIVE PCB V1015A501B

TR1,8
2SD571(K,L)
TR2,4,6,9,12
2SA1115(D,E,F)
TR3,10
2SB941(P)
TR5,11
2SC2603(D,E,F)
TR7,13
2SD1273(P,Q)

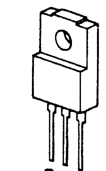

= PNP TRANSISTOR
B
= NPN TRANSISTOR
B



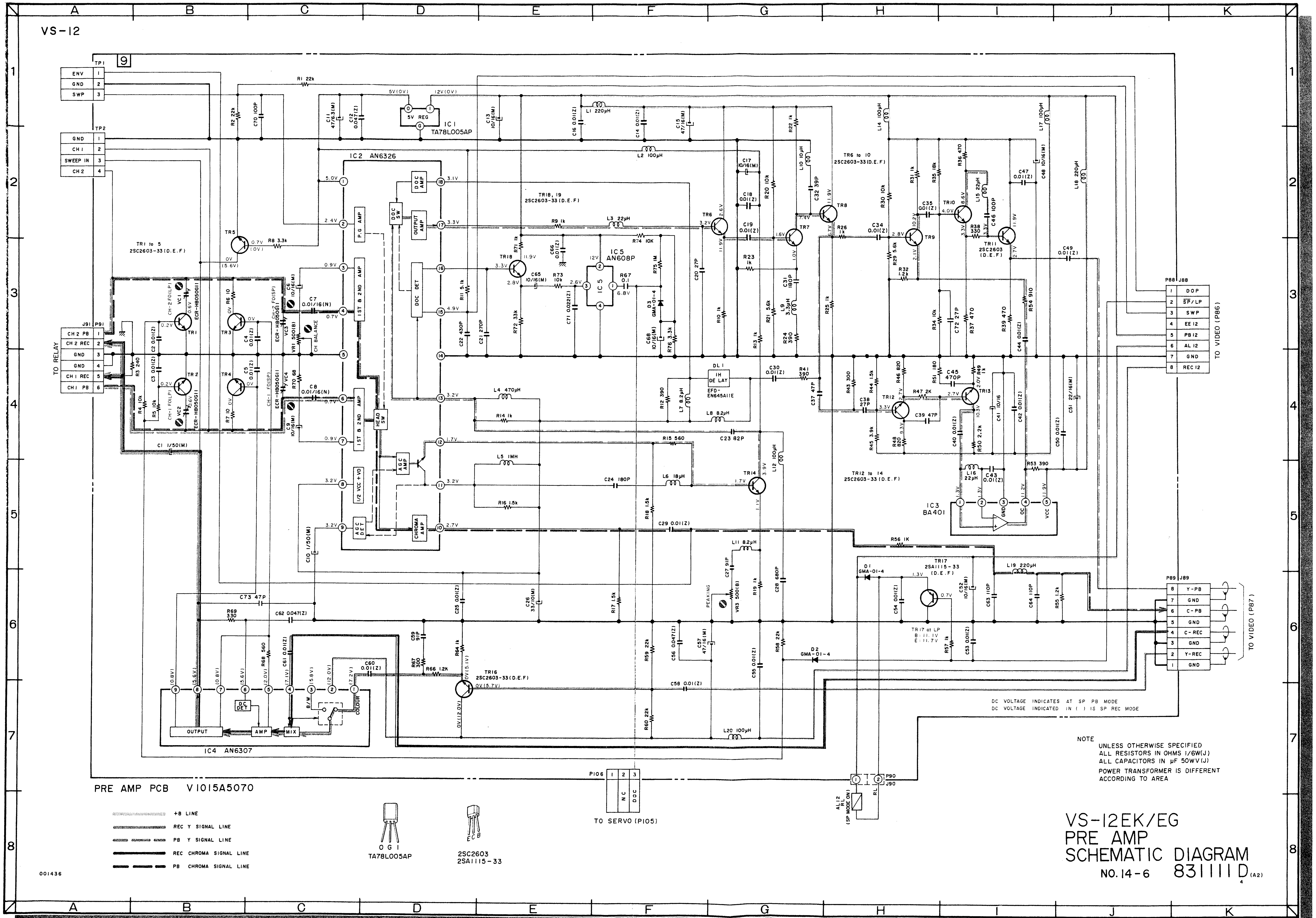
2SD571



2SA1115
2SC2603



2SB941
2SD1273


VS-12
TP1
ENV
GND
SWP
TP2
GND
CH 1
SWEEP IN
CH 2
J91 P91
CH 2 PB
CH 2 REC
GND
GND
CH 1 REC
CH 1 PB
TO RELAY
R1 22k
R2 22k
C70 100P
C11 47/6.3(M)
C12 0.047(Z)
5V(0V)
12V(0V)
5V REG
IC1
TA78L005AP
C13 10/16(M)
C16 0.01(Z)
L1 220μH
C14 0.01(Z)
C15 47/16(M)
L2 100μH
IC2 AN6326
P.G AMP
1ST & 2ND AMP
HEAD SW
AGC DET
CHROMA AMP
1/2 VCC + VD
AGC AMP
DOC DET
DOC SW
DOC AMP
OUTPUT AMP
TR5
R8 3.3k
TR1 to 5
2SC2603-33(D.E.F)
VC1
VC2
ECR-H8050G11
CH-2 F0(LP)
CH-2 F0(SP)
CH-1 F0(LP)
CH-1 F0(SP)
TR1
TR2
TR3
TR4
R6 10
R7 10
C2 0.01(Z)
C3 0.01(Z)
C4 0.01(Z)
C5 0.01(Z)
C6 10/16(M)
C7 0.01/16(N)
C8 0.01/16(N)
C9 10/16(M)
VR1 500(B)
CH BALANCE
R70 68
R3 240
R4 10k
R5 10k
C1 1/50(M)
C10 1/50(M)
TR18, 19
2SC2603-33(D.E.F)
TR18
R9 1k
L3 22μH
R74 10K
C66 0.01(Z)
IC5
AN608P
R67 0.1
R75 1M
C65 10/16(M)
R73 10k
R71 1k
R11 5.1k
R72 33k
C71 0.022(Z)
C22 430P
C21 270P
D3 GMA-01-4
C68 10/16(M)
R76 3.3k
C20 27P
R10 1k
TR6
C17 10/16(M)
C18 0.01(Z)
C19 0.01(Z)
R20 10k
R22 1k
L10 10μH
C32 39P
TR7
TR8
R26 1k
R23 1k
R21 5.6k
C31 180P
L9 3.3μH
R24 390
R13 1k
R25 1k
TR6 to 10
2SC2603-33(D.E.F)
C34 0.01(Z)
TR9
R29 5.6k
R30 10k
R31 1k
R35 18k
C35 0.01(Z)
TR10
R36 470
L15 22μH
C46 100P
R38 330
TR11
2SC2603 (D.E.F)
L14 100μH
C47 0.01(Z)
C48 10/16(M)
L17 100μH
L18 220μH
C49 0.01(Z)
R32 1.2k
R34 10k
C72 27P
R37 470
R39 470
R54 910
C44 0.01(Z)
DL1
1H DE LAY
EFD-EN645A11E
R12 390
L7 8.2μH
L8 8.2μH
C30 0.01(Z)
R41 390
C37 47P
R43 300
R44 1.5k
R46 820
R51 180
C45 470P
R49 1k
TR12
TR13
R47 2K
C38 27P
C39 47P
R45 3.9k
R48 820
C40 0.01(Z)
R50 2.2k
C41 10/16
C42 0.01(Z)
C51 22/16(M)
C50 0.01(Z)
L16 22μH
C43 0.01(Z)
R53 390
IC3
BA401
TR12 to 14
2SC2603-33(D.E.F)
L4 470μH
R14 1k
R15 560
C23 82P
L5 1MH
C24 180P
L6 18μH
R16 1.5k
TR14
L12 100μH
R18 1.5k
C29 0.01(Z)
R56 1K
L11 8.2μH
C27 91P
PEAKING
VR3 500(B)
R19 1k
C28 680P
D1 GMA-01-4
TR17 2SA1115-33 (D.E.F)
C54 0.01(Z)
C52 10/16(M)
C63 110P
L19 220μH
C64 110P
R55 1.2k
TR17 at LP
B : 11.1V
E : 11.7V
R57 1k
C53 0.01(Z)
C73 47P
R69 330
C62 0.047(Z)
C25 0.01(Z)
C26 33/10(M)
R17 1.5k
C59 91P
R64 1k
R68 560
C61 0.01(Z)
C60 0.01(Z)
R67 300
R66 1.2K
TR16
2SC2603-33(D.E.F)
C56 0.047(Z)
C57 47/16(M)
R59 22k
C55 0.01(Z)
R58 22k
D2 GMA-01-4
C58 0.01(Z)
R60 22k
L20 100μH
IC4 AN6307
OUTPUT
AMP
MIX
DC DET
B/W
COLOUR
P88 J88
DOP
SP/LP
SWP
EE 12
PB 12
AL 12
GND
REC 12
TO VIDEO (P86)
P89 J89
Y-PB
GND
C-PB
GND
C-REC
GND
Y-REC
GND
TO VIDEO (P87)
P106
NC
DOC
TO SERVO (P105)
P90
J90
AL 12
RL
(SP MODE ON)
O G I
TA78L005AP
E C B
2SC2603
2SA1115-33
001436
A B C D E F G H I J K
1 2 3 4 5 6 7 8
9

PRE AMP PCB V1015A5070

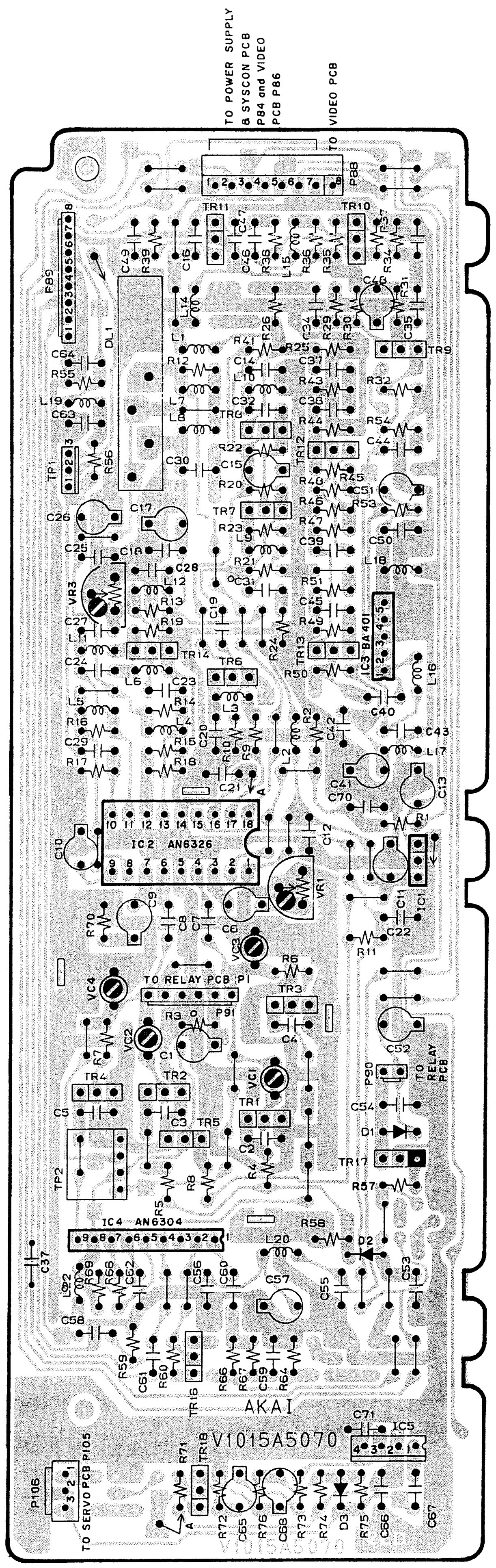
- +B LINE
- REC Y SIGNAL LINE
- PB Y SIGNAL LINE
- REC CHROMA SIGNAL LINE
- PB CHROMA SIGNAL LINE

DC VOLTAGE INDICATES AT SP PB MODE
DC VOLTAGE INDICATED IN ( ) IS SP REC MODE

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W(J)
ALL CAPACITORS IN μF 50WV(J)
POWER TRANSFORMER IS DIFFERENT
ACCORDING TO AREA

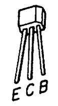
VS-12EK/EG
PRE AMP
SCHEMATIC DIAGRAM

NO. 14-6 831111D (A2)
4


TO POWER SUPPLY & SYSCON PCB P84 and VIDEO PCB P86
TO VIDEO PCB
P88
P89
DL1
TP1
TP2
VR1
VR3
VC1
VC2
VC3
VC4
IC1
IC2 AN6326
IC3 BA401
IC4 AN6304
IC5
TO RELAY PCB P1
P91
P90
TO RELAY PCB
TO SERVO PCB P105
P106
AKAI
V1015A5070

PRE AMP PCB V1015A5070 (2ED)

TR1 to TR14, TR16, TR18, TR19
.... 2SC2603 (D, E, F)
TR17.............. 2SA1115 (D, E, F)



2SA1115
2SC2603

VC1 LP CH2 Fo
VC2 LP CH1 Fo
VC3 SP CH2 Fo
VC4 SP CH1 Fo
VR1 CHANNEL BALANCE
VR3 PEAKING

■●● = PNP TRANSISTOR
B

●|●● = NPN TRANSISTOR
B

TR1,201,201b	2SC3383(S,T)
TR2to7,9to19,22,23,152,152b,153,153b	2SC2603(D,E,F)
TR8	2SA1115(D,E,F)
TR20,21	2SJ103(GR,BL)

LOCATION OF IC'S

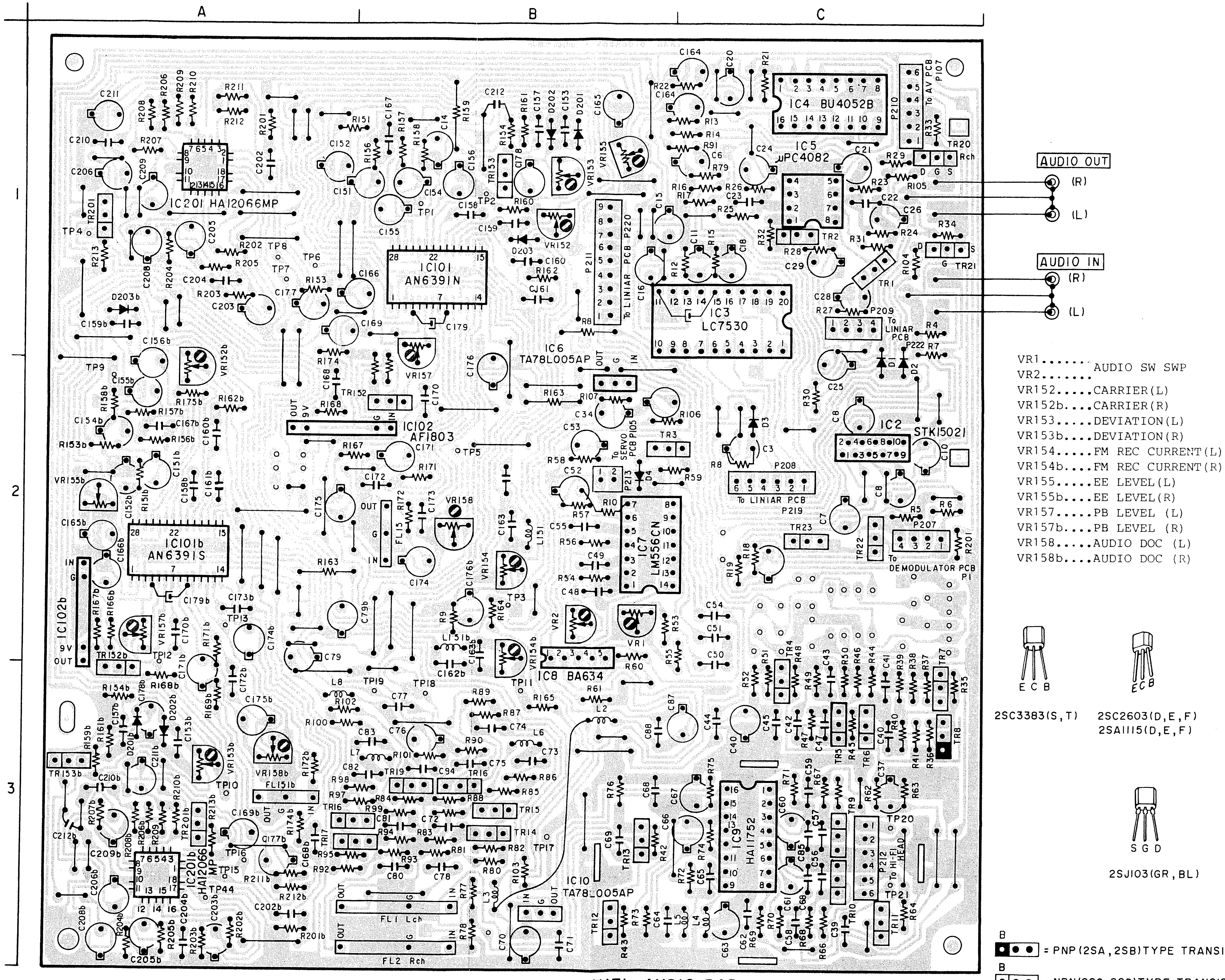
IC2	2C
IC3	1C,1B
IC4	1C
IC5	1C
IC6	2B
IC7	2B
IC8	2B,3B
IC9	3C
IC10	3B
IC101	1B
IC101b	2A
IC102	2A,2B
IC102b	2A
IC201	1A
IC201b	3A

LOCATION OF TR'S

TR1	1C
TR2	1C
TR3	2B,2C
TR4	3C
TR5	3C
TR6	3C
TR7	3C
TR8	3C
TR9	3C
TR10	3C
TR11	3C
TR12	3B
TR13	3B
TR14	3B
TR15	3B
TR16	3B
TR17	3B
TR18	3B
TR19	3B
TR20	1C
TR21	1C
TR22	2C
TR23	2C
TR152	2B
TR152b	3A
TR153	1B
TR153b	3A
TR201	1A
TR201b	3A

LOCATION OF CONNECTOR

P207	2C
P208	2C
P209	1C
P210	1C
P211	1B
P212	3C
P213	2B


A
B
C
1
2
3
AUDIO OUT
(R)
(L)
AUDIO IN
(R)
(L)
IC4 BU4052B
IC5 μPC4082
IC201 HA12066MP
IC101 AN6391N
IC3 LC7530
IC6 TA78L005AP
IC2 STK15021
IC102 AF1803
IC101b AN6391S
IC7 LM556CN
IC102b
IC8 BA634
IC9 HA11752
IC10 TA78L005AP
IC201b HA12066MP
To AV PCB P107
To LINIAR PCB P220
To LINIAR PCB P219
To SERVO PCB P105
To DEMODULATOR PCB P1
To HI-FI HEAD
FL1 Lch
FL2 Rch
E C B
2SC3383(S,T)
ECB
2SC2603(D,E,F)
2SA1115(D,E,F)
S G D
2SJ103(GR,BL)

HIFI AUDIO PCB
V1039A5010

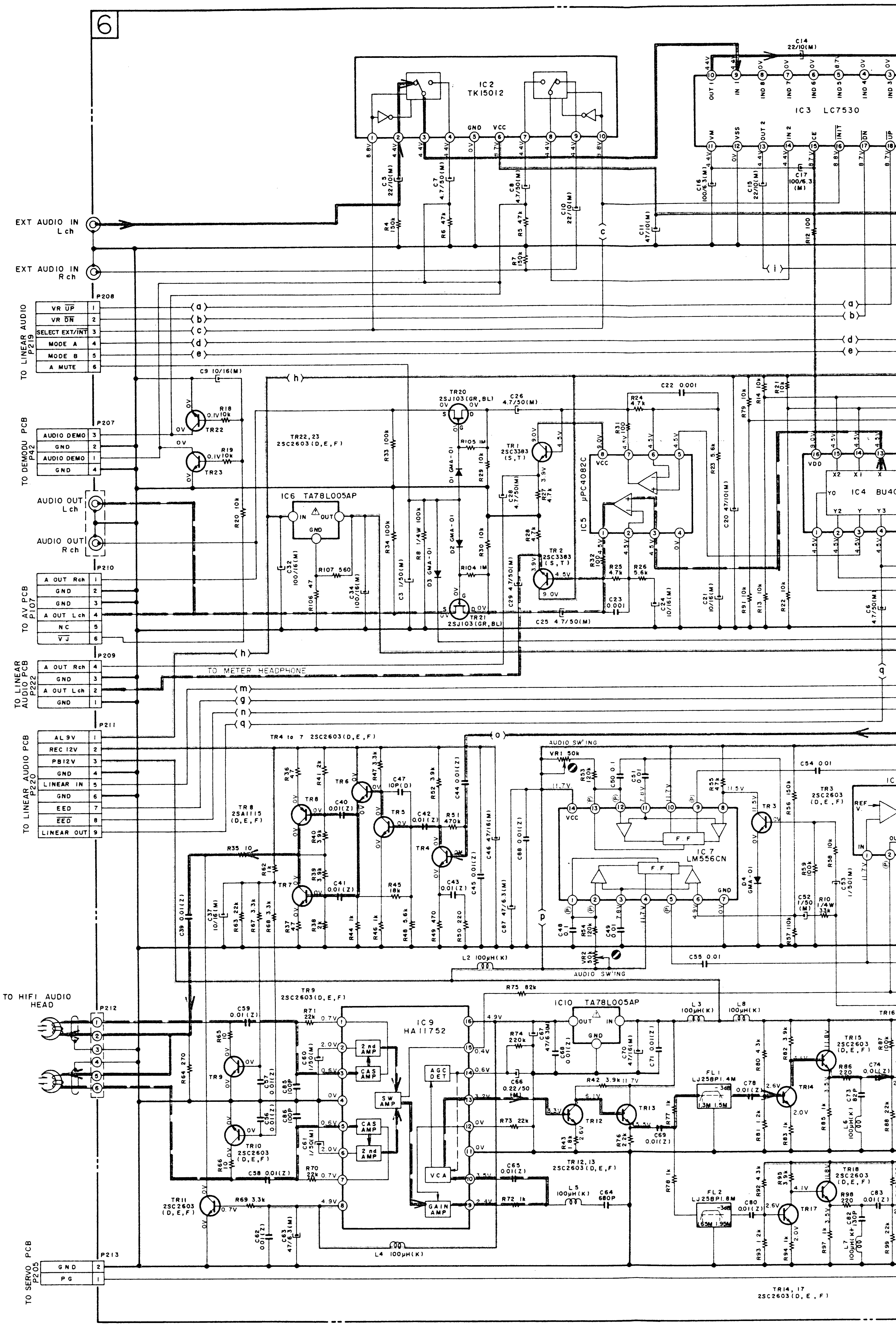
VR1 VR2	AUDIO SW SWP
VR152	CARRIER(L)
VR152b	CARRIER(R)
VR153	DEVIATION(L)
VR153b	DEVIATION(R)
VR154	FM REC CURRENT(L)
VR154b	FM REC CURRENT(R)
VR155	EE LEVEL(L)
VR155b	EE LEVEL(R)
VR157	PB LEVEL (L)
VR157b	PB LEVEL (R)
VR158	AUDIO DOC (L)
VR158b	AUDIO DOC (R)

B
■●● = PNP(2SA,2SB)TYPE TRANSISTOR

B
●●● = NPN(2SC,2SD)TYPE TRANSISTOR

VS-12EK/EG

6



A
B
C
D
E
1
2
3
4
5
6
7
8
IC2 TK15012
IC3 LC7530
IC4 BU4
IC5 μPC4082C
IC6 TA78L005AP
IC7 LM556CN
IC9 HA11752
IC10 TA78L005AP
EXT AUDIO IN L ch
EXT AUDIO IN R ch
P208
VR UP
VR DN
SELECT EXT/INT
MODE A
MODE B
A MUTE
TO LINEAR AUDIO P219
P207
AUDIO DEMO
GND
AUDIO DEMO
GND
TO DEMODU PCB P42
AUDIO OUT L ch
AUDIO OUT R ch
P210
A OUT Rch
GND
GND
A OUT Lch
NC
VJ
TO AV PCB P107
P209
A OUT Rch
GND
A OUT Lch
GND
TO LINEAR AUDIO PCB P222
TO METER HEADPHONE
P211
AL 9V
REC 12V
PB 12V
GND
LINEAR IN
GND
EED
EED
LINEAR OUT
TO LINEAR AUDIO PCB P220
TO HIFI AUDIO HEAD
P212
P213
GND
PG
TO SERVO PCB P205
TR22, 23 2SC2603 (D, E, F)
TR20 2SJ103 (GR, BL)
TR21 2SJ103 (GR, BL)
TR1 2SC3383 (S, T)
TR2 2SC3383 (S, T)
TR4 to 7 2SC2603 (D, E, F)
TR8 2SA1115 (D, E, F)
TR3 2SC2603 (D, E, F)
TR9 2SC2603 (D, E, F)
TR10 2SC2603 (D, E, F)
TR11 2SC2603 (D, E, F)
TR12, 13 2SC2603 (D, E, F)
TR15 2SC2603 (D, E, F)
TR18 2SC2603 (D, E, F)
TR14, 17 2SC2603 (D, E, F)
D1 GMA-01
D2 GMA-01
D3 GMA-01
D4 GMA-01
VR1 50k
VR2
AUDIO SW'ING
2 nd AMP
CAS AMP
SW AMP
AGC DET
VCA
GAIN AMP
FL1 LJ258P1.4M
FL2 LJ258P1.8M
L2 100μH(K)
L3 100μH(K)
L4 100μH(K)
L5 100μH(K)
L8 100μH(K)

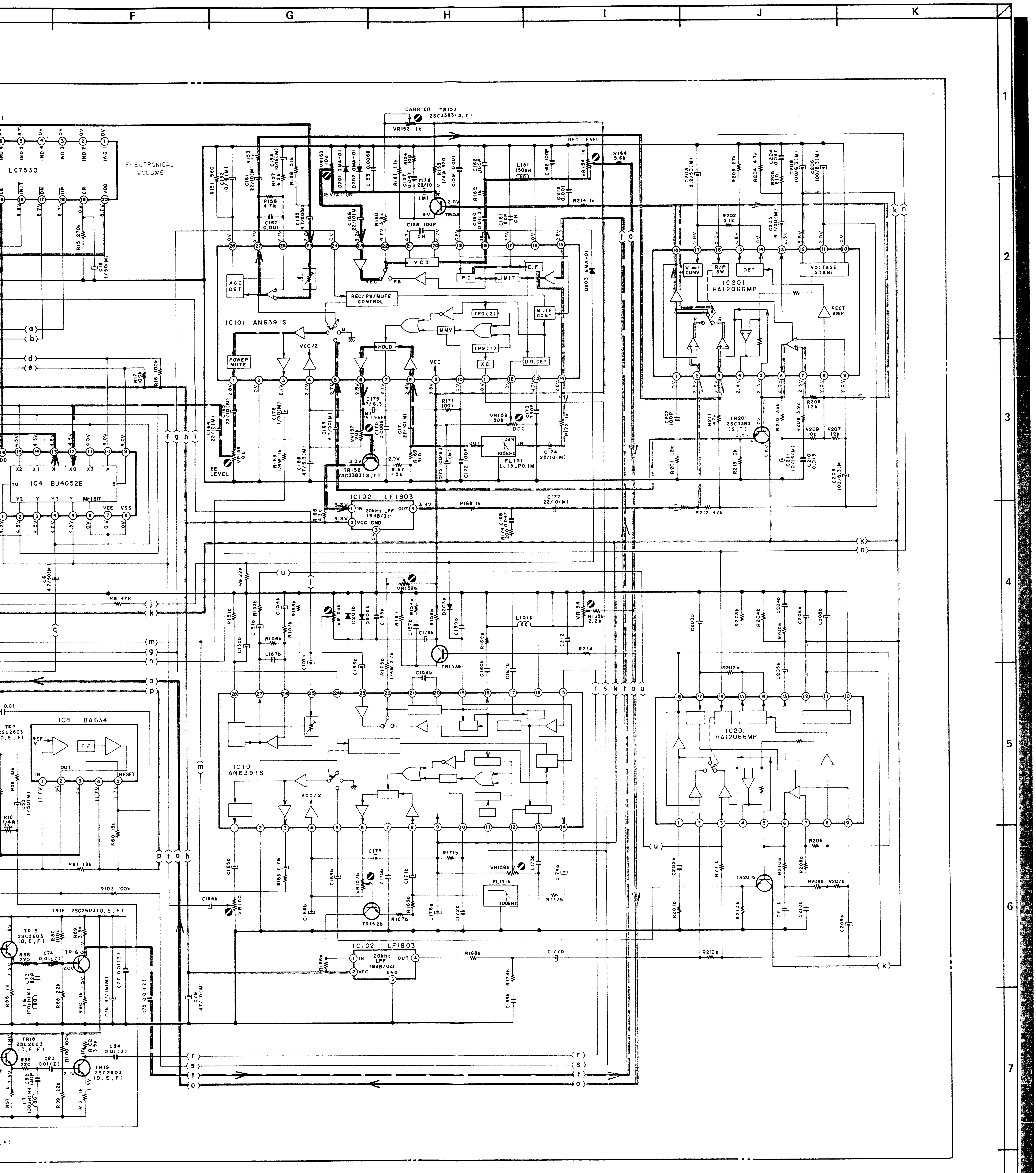
HIFI AUDIO PCB V1039A5010

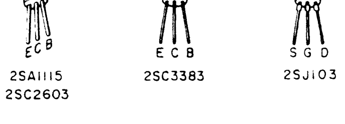
+B (POWER SUPPLY) LINE

REC (L ch)

PB (L ch)

D01551


F
G
H
I
J
K
1
2
3
4
5
6
7
8
LC7530
ELECTRONICAL VOLUME
IND1
IND2
IND3
IND4
IND5
IND6
INIT
DN
UP
CR
VDD
CARRIER
TR153 2SC3383(S,T)
VR152 1k
REC LEVEL
DEVIATION
VR153 10k
D201 GMA-01
D202 GMA-01
R164 5.6k
L151 150µH
R214 1k
IC101 AN6391S
AGC DET
REC/PB/MUTE CONTROL
VCO
PC
LIMIT
E.F
MUTE CONT
TPG(2)
TPG(1)
MMV
HOLD
X2
D.O.DET
POWER MUTE
VCC/2
REC
PB
D203 GMA-01
VR158 50k DOC
FL151 LJ15LPO.1M
100kHz
−3dB
TR152 2SC3383(S,T)
VR155 10k
EE LEVEL
VR157 20k
DEEMPHASIS LEVEL
IC102 LF1803
20kHz LPF 18dB/Oct
IN
OUT
VCC
GND
IC4 BU4052B
INHIBIT
VEE
VSS
IC201 HA12066MP
V-I CONV
R/P SW
DET
VOLTAGE STABI
RECT AMP
TR201 2SC3383(S,T)
R212 47k
IC8 BA634
REF V.
FF
RESET
TR3 2SC2603
TR15 2SC2603 (D,E,F)
TR16 2SC2603(D,E,F)
TR18 2SC2603 (D,E,F)
TR19 2SC2603 (D,E,F)
R103 100k
R61 18k
R60 18k
R8 47K
TR153b
TR152b
TR201b
IC101 AN6391S
IC102 LF1803
IC201 HA12066MP
FL151b
VR154
VR155

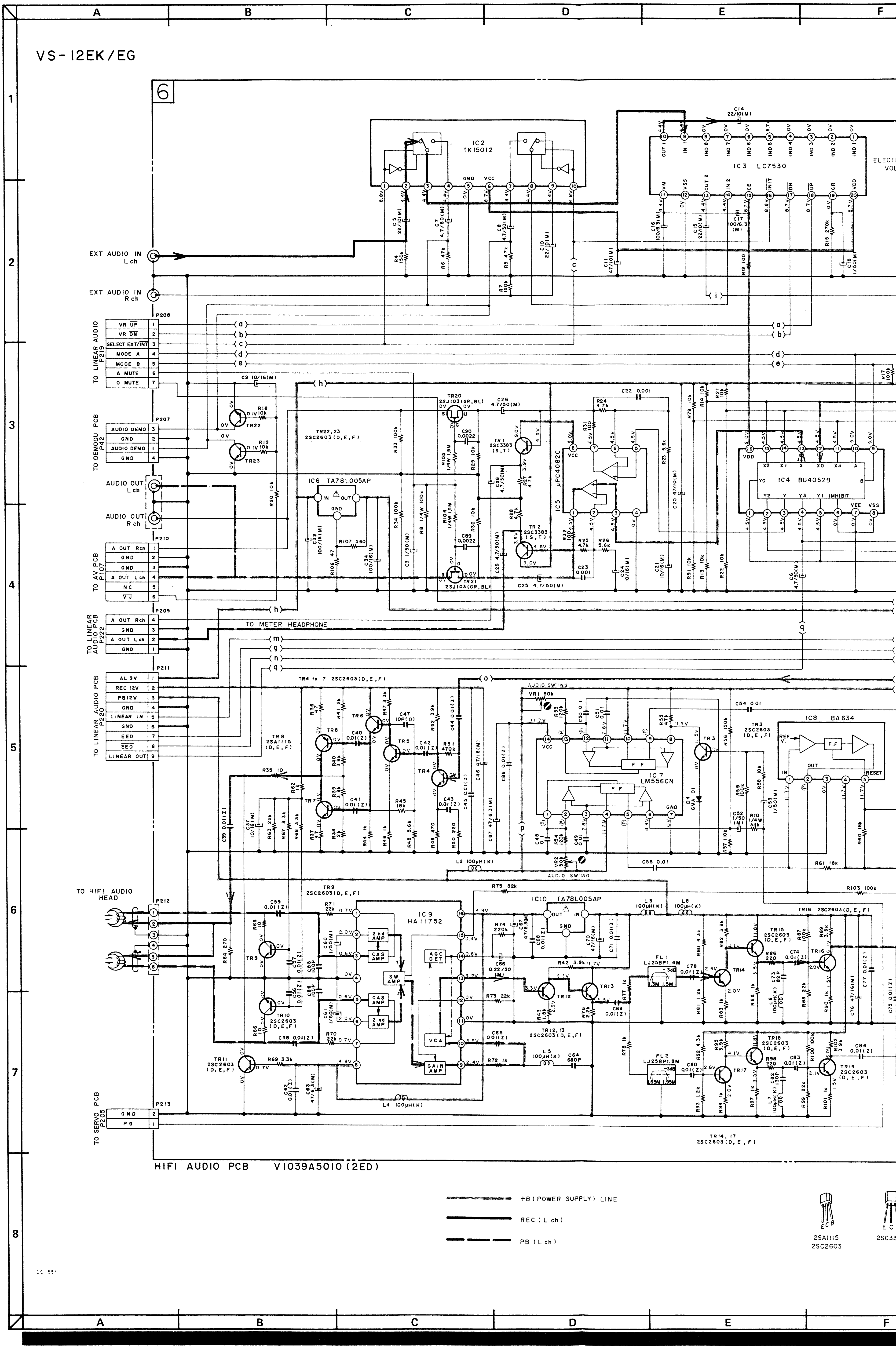

E C B
E C B
S G D
2SA1115
2SC2603
2SC3383
2SJ103

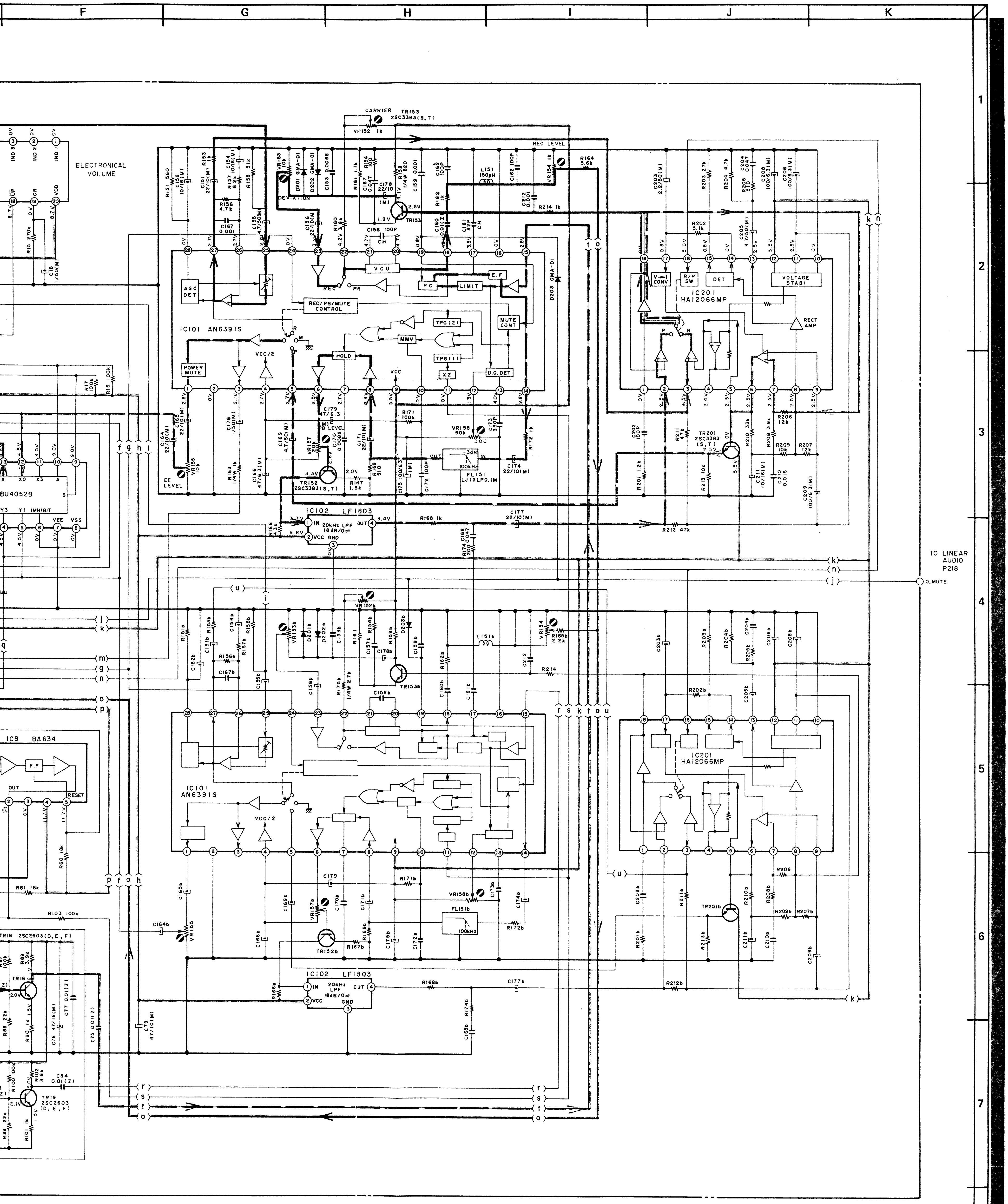
WARNING. ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY.
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

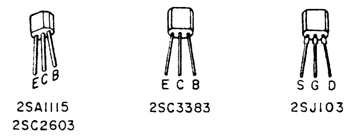
AVERTISSEMENT. ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SECURITE.
POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL.
NE REMPLACER QUE DES PIECES RECOMMANDEES PAR LE FABRICANT

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W(J)
ALL CAPACITORS IN µF 50WV(J)

VS-12EK/EG
HIFI AUDIO
SCHEMATIC DIAGRAM
NO. 14-8 840710B
4C


VS-12EK/EG
6
A
B
C
D
E
F
1
2
3
4
5
6
7
8
IC2 TK15012
IC3 LC7530
ELECT
VOL
IC4 BU4052B
IC5 μPC4082C
IC6 TA78L005AP
IC7 LM556CN
IC8 BA634
IC9 HA11752
IC10 TA78L005AP
EXT AUDIO IN L ch
EXT AUDIO IN R ch
TO LINEAR AUDIO P219
P208
VR UP
VR DN
SELECT EXT/INT
MODE A
MODE B
A MUTE
D MUTE
TO DEMODU PCB P42
P207
AUDIO DEMO
GND
AUDIO OUT L ch
AUDIO OUT R ch
TO AV PCB P107
P210
A OUT Rch
A OUT Lch
NC
VJ
TO LINEAR AUDIO PCB P222
P209
TO METER HEADPHONE
TO LINEAR AUDIO PCB P220
P211
AL 9V
REC 12V
PB12V
LINEAR IN
EED
LINEAR OUT
TO HIFI AUDIO HEAD
P212
TO SERVO PCB P205
P213
PG
TR20 2SJ103(GR,BL)
TR21 2SJ103(GR,BL)
TR1 2SC3383 (S,T)
TR2 2SC3383 (S,T)
TR22,23 2SC2603(D,E,F)
TR4 to 7 2SC2603(D,E,F)
TR8 2SA1115 (D,E,F)
TR3 2SC2603 (D,E,F)
TR9 2SC2603(D,E,F)
TR10 2SC2603(D,E,F)
TR11 2SC2603 (D,E,F)
TR12,13 2SC2603(D,E,F)
TR14,17 2SC2603(D,E,F)
TR15 2SC2603 (D,E,F)
TR16 2SC2603(D,E,F)
TR18 2SC2603 (D,E,F)
TR19 2SC2603 (D,E,F)
AUDIO SW'ING
VR1 50k
VR2 50k
FL1 LJ258P1.4M
FL2 LJ258P1.8M
2nd AMP
CAS AMP
SW AMP
AGC DET
VCA
GAIN AMP
L2 100μH(K)
L3 100μH(K)
L4 100μH(K)
L5 100μH(K)
L8 100μH(K)
HIFI AUDIO PCB V1039A5010(2ED)
+B(POWER SUPPLY) LINE
REC (L ch)
PB (L ch)
2SA1115
2SC2603
2SC33


F
G
H
I
J
K
1
2
3
4
5
6
7
8
ELECTRONICAL VOLUME
IND 3
IND 2
IND 1
VDD
CARRIER
TR153 2SC3383(S,T)
VR152 1k
REC LEVEL
R164 5.6k
VR154 1k
IC101 AN6391S
AGC DET
REC/PB/MUTE CONTROL
VCO
PC
LIMIT
E.F
MUTE CONT
TPG(2)
TPG(1)
MMV
HOLD
X2
D.O.DET
POWER MUTE
VCC/2
VCC
DEVIATION
VR153 10k
D201 GMA-01
D202 GMA-01
D203 GMA-01
L151 150µH
R151 560
R153 1k
R136 4.7k
R137 6.2k
R158 5.1k
R160 3.9k
R161 1k
R154 10
R159 1/4W 820
R162 1k
R214 1k
R171 100k
VR158 50k
DOC
R172 1k
FL151 LJ13LPO.1M
100kHz
-3dB
R163 1/4W 1k
VR155 10k
EE LEVEL
VR157 20k
B LEVEL
TR152 2SC3383(S,T)
R167 1.5k
R169 510
IC102 LF1803
20kHz LPF 18dB/Oct
IN
OUT
VCC
GND
R166 4.3k
R168 1k
C177 22/10(M)
R174 200
R212 47k
IC201 HA12066MP
V-I CONV
R/P SW
DET
VOLTAGE STABI
RECT AMP
R202 5.1k
R203 27k
R204 4.7k
R205 510
TR201 2SC3383(S,T)
R201 12k
R211 47k
R213 10k
R210 33k
R206 12k
R208 3.9k
R209 10k
R207 12k
TO LINEAR AUDIO P218
O.MUTE
BU4052B
INHIBIT
IC8 BA634
F.F
OUT
RESET
R17 100k
R16 100k
R60 18k
R61 18k
R103 100k
TR16 2SC2603(D,E,F)
TR16
R89 3.9k
R88 22k
R90 1k
C76 47/16(M)
C77 0.01(Z)
C75 0.01(Z)
C79 47/10(M)
TR19 2SC2603 (D,E,F)
R102 3.9k
C84 0.01(Z)
R100 100k
R99 22k
R101 1k
IC101 AN6391S
IC102 LF1803
IC201 HA12066MP
TR152b
TR153b
TR201b



2SA1115
2SC2603

2SC3383

2SJ103

WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY.
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SECURITE.
POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL.
NE REMPLACER QUE DES PIECES RECOMMANDEES PAR LE FABRICANT

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W(J)
ALL CAPACITORS IN µF 50WV(J)

VS-12EK/EG
HIFI AUDIO (2ED)
SCHEMATIC DIAGRAM

NO. 14-9 840710A

4C

TR1,201,201b	2SC3383(S,T)
TR2to7,9to19,22,23,152,152b,153,153b	2SC2603(D,E,F)
TR8	2SA1115(D,E,F)
TR20,21	2SJ103(GR,BL)

LOCATION OF IC'S

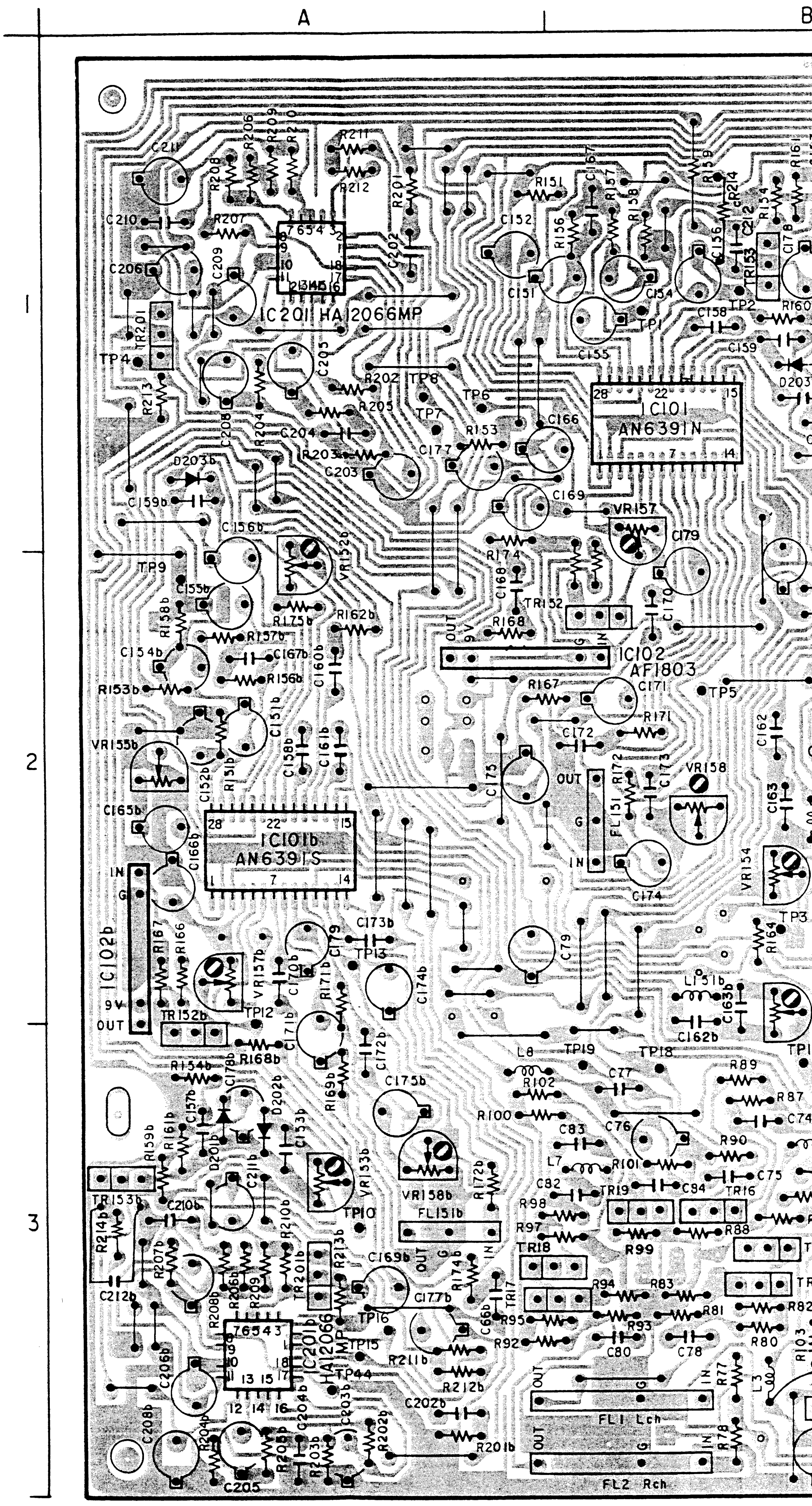
IC2	2C
IC3	1C,1B
IC4	1C
IC5	1C
IC6	2B
IC7	2B
IC8	2B,3B
IC9	3C
IC10	3B
IC101	1B
IC101b	2A
IC102	2A,2B
IC102b	2A
IC201	1A
IC201b	3A

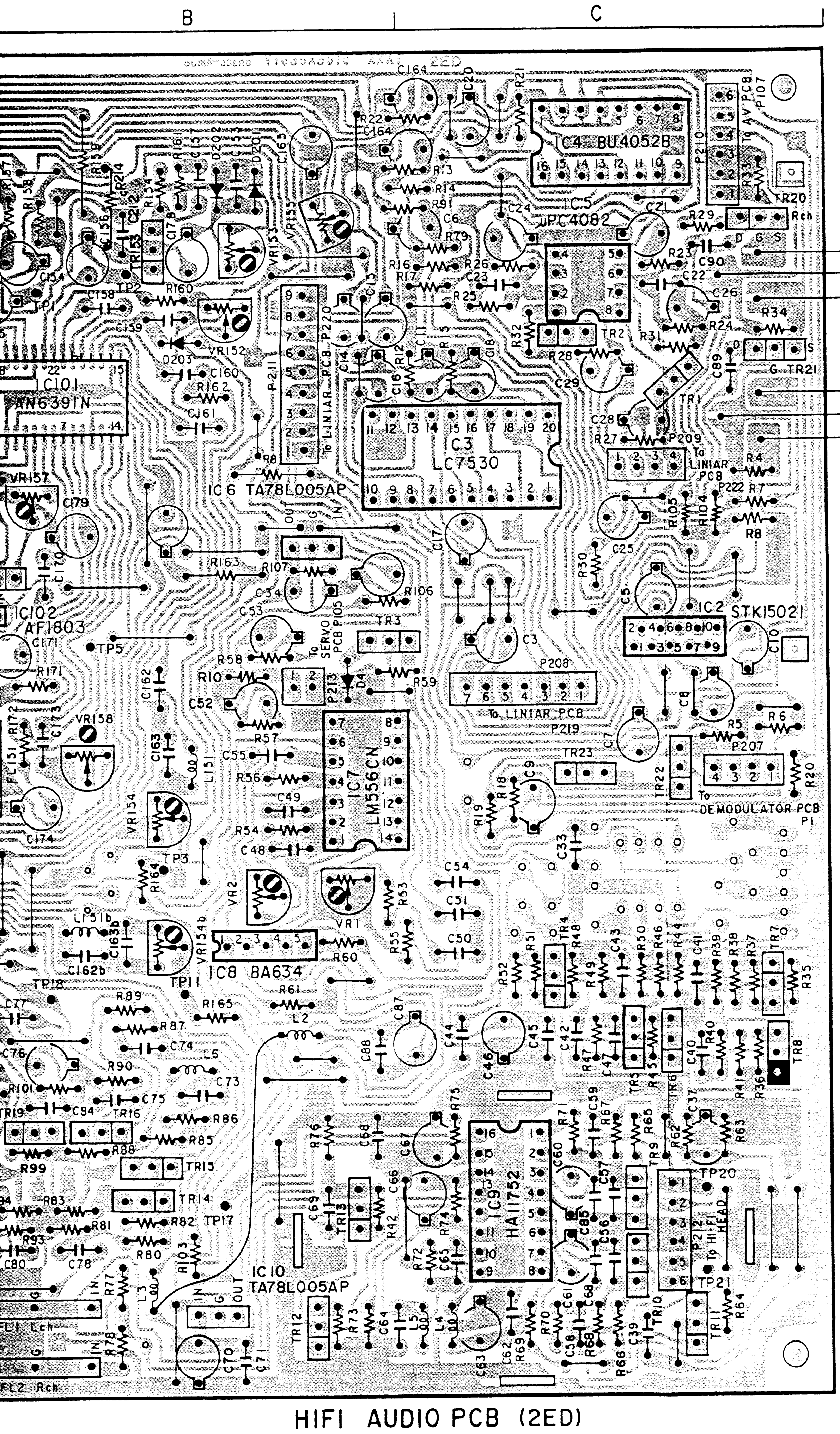
LOCATION OF TR'S

TR1	1C
TR2	1C
TR3	2B,2C
TR4	3C
TR5	3C
TR6	3C
TR7	3C
TR8	3C
TR9	3C
TR10	3C
TR11	3C
TR12	3B
TR13	3B
TR14	3B
TR15	3B
TR16	3B
TR17	3B
TR18	3B
TR19	3B
TR20	1C
TR21	1C
TR22	2C
TR23	2C
TR152	2B
TR152b	3A
TR153	1B
TR153b	3A
TR201	1A
TR201b	3A

LOCATION OF CONNECTOR

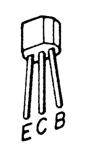
P207	2C
P208	2C
P209	1C
P210	1C
P211	1B
P212	3C
P213	2B


A
B
1
2
3
IC201 HA12066MP
IC101 AN6391N
IC102 AF1803
IC101b AN6391S
IC102b
IC201b HA12066MP
FL151
FL151b
FL1 Lch
FL2 Rch

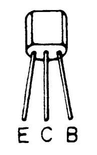

B
C
IC4 BU4052B
IC5 μPC4082
IC101 AN6391N
IC3 LC7530
IC6 TA78L005AP
IC102 AF1803
IC2 STK15021
IC7 LM556CN
IC8 BA634
IC9 HA11752
IC10 TA78L005AP
To LINIAR PCB
To SERVO PCB
To DEMODULATOR PCB
To HI-FI HEAD
AV PCB
AUDIO OUT
(R)
(L)
AUDIO IN
(R)
(L)

HIFI AUDIO PCB (2ED)
V1039A5010

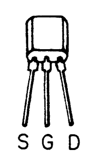
VR1.......
VR2....... AUDIO SW SWP
VR152.....CARRIER(L)
VR152b....CARRIER(R)
VR153.....DEVIATION(L)
VR153b....DEVIATION(R)
VR154.....FM REC CURRENT(L)
VR154b....FM REC CURRENT(R)
VR155.....EE LEVEL(L)
VR155b....EE LEVEL(R)
VR157.....PB LEVEL (L)
VR157b....PB LEVEL (R)
VR158.....AUDIO DOC (L)
VR158b....AUDIO DOC (R)



2SA1115(D,E,F)
2SC2603(D,E,F)



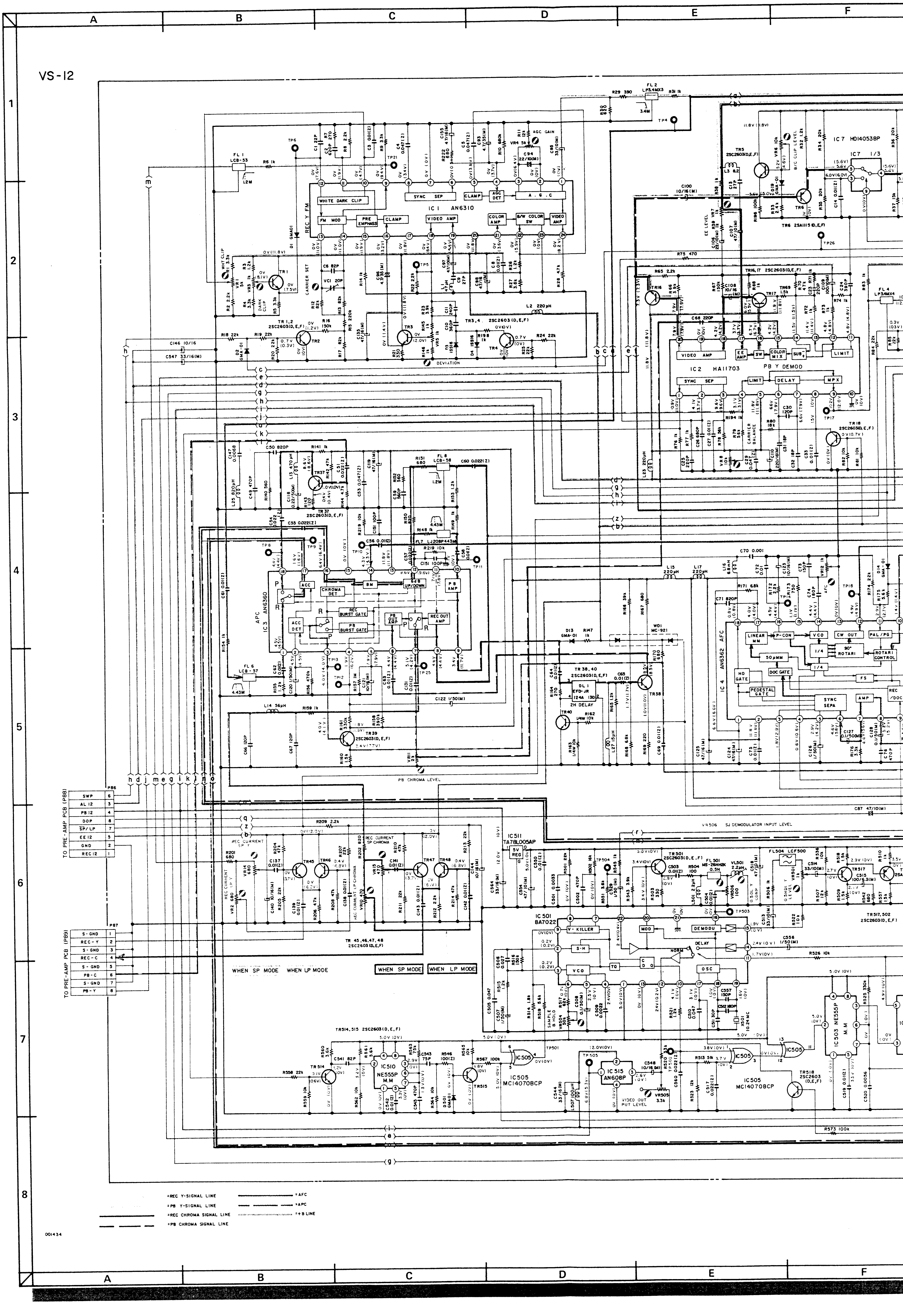
2SC3383(S,T)

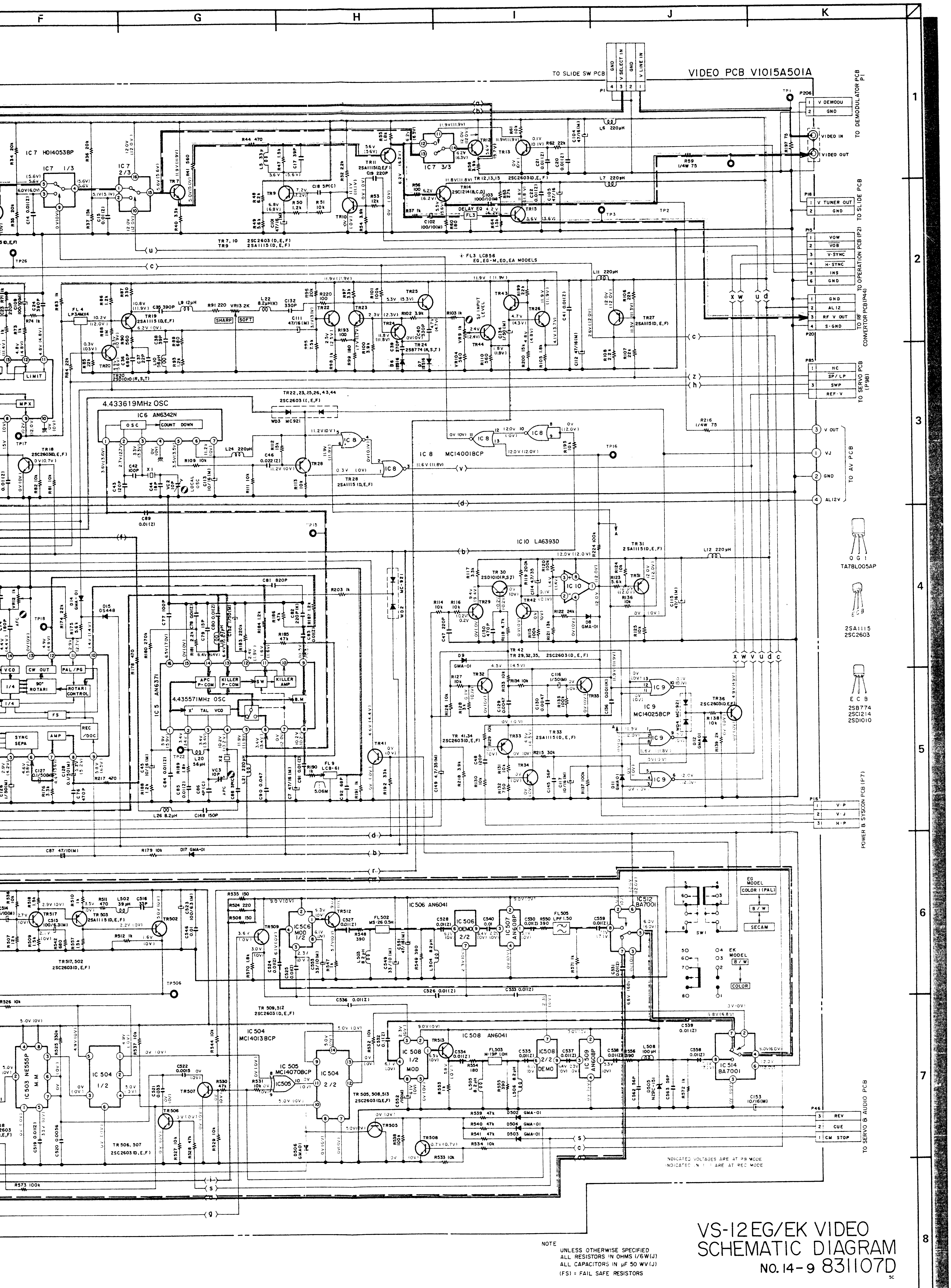


2SJ103(GR,BL)

B
■●● = PNP(2SA,2SB)TYPE TRANSISTOR

B
●●● = NPN(2SC,2SD)TYPE TRANSISTOR

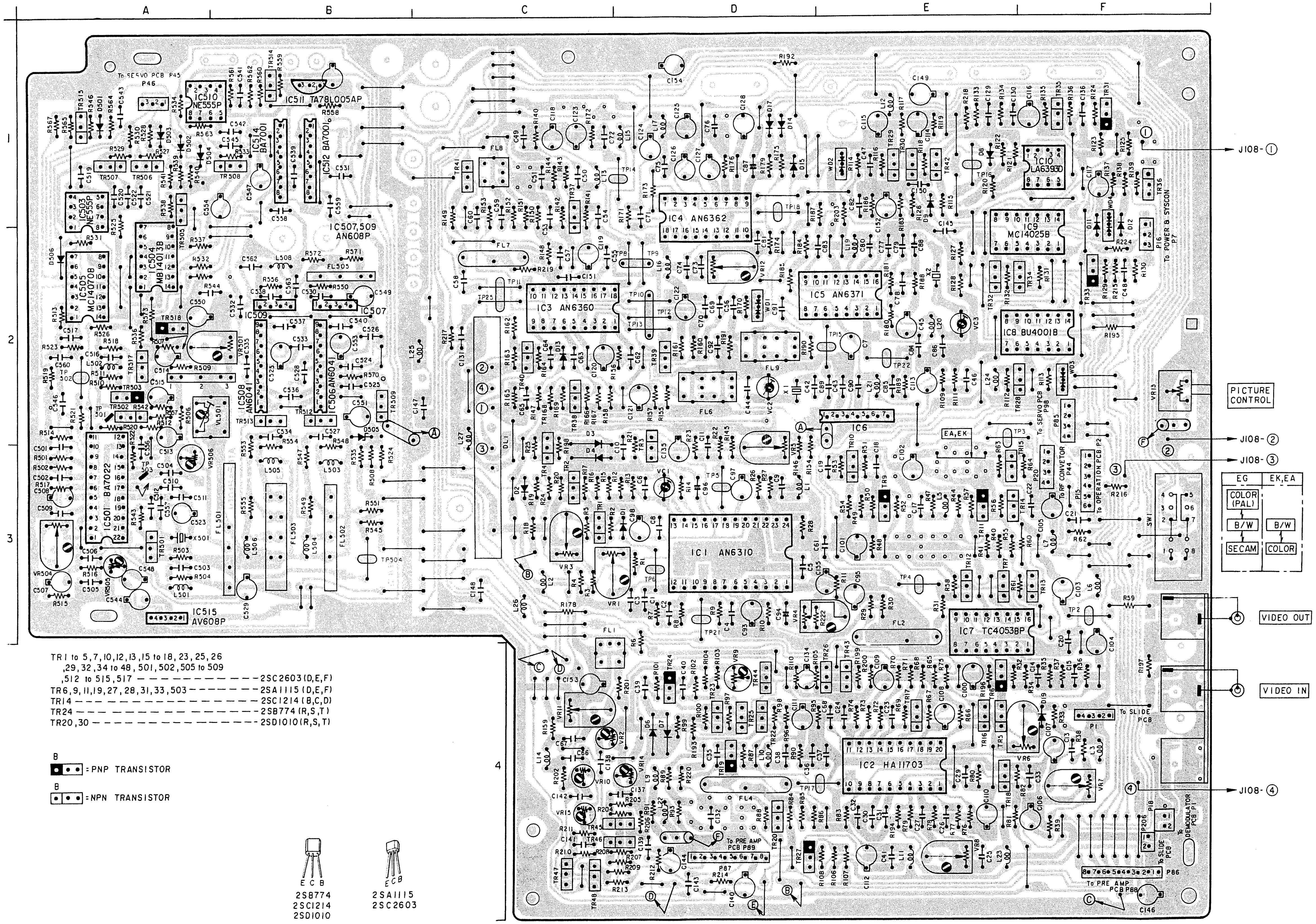

VS-12
A
B
C
D
E
F
1
2
3
4
5
6
7
8
IC 1 AN6310
WHITE DARK CLIP
FM MOD
PRE EMPHASIS
CLAMP
SYNC SEP
AGC DET
A.G.C
VIDEO AMP
COLOR AMP
B/W COLOR SW
VIDEO AMP
REC Y FM
IC 7 HD14053BP
IC2 HA11703
PB Y DEMOD
VIDEO AMP
EE AMP
SW
COLOR MIX
SUB
LIMIT
SYNC SEP
DELAY
MPX
IC 3 AN6360
APC
ACC
CHROMA DET
BM
UP/DOWN
PB AMP
ACC DET
REC BURST GATE
PB BURST GATE
PB OUT AMP
REC OUT AMP
PB CHROMA LEVEL
IC 4 AN6362 AFC
LINEAR MM
P-CON
VCO
CW OUT
PAL/PG
90° ROTARI
ROTARI CONTROL
50μMM
DOC GATE
HD GATE
PEDESTAL GATE
SYNC SEPA
AMP
FS
IC511 TA78L005AP
5V REG
IC 501 BA7022
V-KILLER
S-H
VCO
MOD
DEMODU
DELAY
NORM
OSC
IC 510 NE555P M.M
IC505 MC14070BCP
IC 515 AN608P
IC 503 NE555P M.M
VIDEO OUT PUT LEVEL
SJ DEMODULATOR INPUT LEVEL
TO PRE-AMP PCB (P88)
P86
SWP
AL 12
PB 12
DOP
SP/LP
EE 12
GND
REC12
TO PRE-AMP PCB (P89)
P87
S-GND
REC-Y
S-GND
REC-C
S-GND
PB-C
S-GND
PB-Y
WHEN SP MODE
WHEN LP MODE
TR 45,46,47,48 2SC2603(D,E,F)
TR514,515 2SC2603(D,E,F)
TR517,502 2SC2603(D,E,F)
=REC Y-SIGNAL LINE
=PB Y-SIGNAL LINE
=REC CHROMA SIGNAL LINE
=PB CHROMA SIGNAL LINE
=AFC
=APC
=+B LINE
001434


F
G
H
I
J
K
1
2
3
4
5
6
7
8
VIDEO PCB V1015A501A
TO SLIDE SW PCB
P1
GND
V SELECT IN
GND
V LINE IN
TO DEMODULATOR PCB P1
P206
V DEMODU
GND
VIDEO IN
VIDEO OUT
TP1
TP2
TP3
TP15
TP16
TP17
TP18
TP22
TP26
TP506
P16
V TUNER OUT
TO SLIDE PCB
P15
VOW
VOB
V·SYNC
H·SYNC
INS
TO OPERATION PCB (P2)
AL12
RF V OUT
S·GND
TO RF CONVERTOR PCB (P44)
P20
P85
NC
SP/LP
SWP
REF·V
TO SERVO PCB (P98)
V OUT
VJ
AL12V
TO AV PCB
TA78L005AP
O G I
2SA1115
2SC2603
E C B
2SB774
2SC1214
2SD1010
V·P
V·J
H·P
POWER & SYSCON PCB (P7)
P46
REV
CUE
CM STOP
TO SERVO & AUDIO PCB
IC7 HD14053BP
IC7 1/3
IC7 2/3
IC7 3/3
TR7, 10 2SC2603 (D,E,F)
TR9 2SA1115 (D,E,F)
TR11 2SA1115 (D,E,F)
TR14 2SC1214 (B,C,D)
TR 12,13,15 2SC2603 (D,E,F)
DELAY EQ
FL3
※ FL3 LC856 EG, EG-M, EO, EA MODELS
FL4 LP34MX4
TR19 2SA1115 (D,E,F)
TR20 2SD1010 (R,S,T)
SHARP
SOFT
TR24 2SB774 (R,S,T)
TR27 2SA1115 (D,E,F)
TR22,23,25,26,43,44 2SC2603 (D,E,F)
INPUT LEVEL
LIMIT
MPX
4.433619MHz OSC
IC6 AN6342N
OSC
COUNT DOWN
IC8 MC14001BCP
TR28 2SA1115 (D,E,F)
TR18 2SC2603 (D,E,F)
WD3 MC921
WD2 MC-921
IC10 LA6393D
TR30 2SD1010 (R,S,T)
TR31 2SA1115 (D,E,F)
TR 42
TR 29,32,35, 2SC2603 (D,E,F)
IC 9 MC14025BCP
TR36 2SC2603 (D,E,F)
TR 41,34 2SC2603 (D,E,F)
TR33 2SA1115 (D,E,F)
IC 5 AN6371
4.435571MHz OSC
APC P-COM
KILLER P-COM
KILLER AMP
SW
B.M
X' TAL VCO
VCO
CW OUT
PAL/PG
1/4
90° ROTARI
ROTARI CONTROL
FS
SYNC SEPA
AMP
REC /DOC
FL9 LCB-61
5.06M
D15 DS448
TR41
TR51
TR517,502 2SC2603 (D,E,F)
TR 503 2SA1115 (D,E,F)
TR502
IC506 AN6041
IC5C6 MOD 1/2
IC 506 DEMO 2/2
IC 507 AN608P
FL505 LPF 1.0M
FL502 MS-26 0.5H
IC512 BA7001
TR 509,512 2SC2603 (D,E,F)
SW 1
EG MODEL
COLOR 1 (PAL)
B/W
SECAM
EK MODEL
COLOR
IC 503 NE555P M.M
IC 504 1/2
IC504 MC14013BCP
IC 505 MC14070BCP
IC 504 2/2
IC 508 AN6041
IC 508 1/2 MOD
IC508 2/2 DEMO
IC 509 AN608P
FL503 M-19P LOH
IC 514 BA7001
TR 505,508,513 2SC2603 (D,E,F)
TR506
TR507
TR 506, 507 2SC2603 (D,E,F)
TR505
TR508
D502 GMA-01
D504 GMA-01
D503 GMA-01
INDICATED VOLTAGES ARE AT PB MODE
INDICATED ( ) ARE AT REC MODE

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W(J)
ALL CAPACITORS IN μF 50 WV(J)
(FS) = FAIL SAFE RESISTORS

VS-12EG/EK VIDEO SCHEMATIC DIAGRAM

NO.14-9 831107D


A
B
C
D
E
F
1
2
3
4
To SERVO PCB P45
P46
IC510 NE555P
IC511 TA78L005AP
IC514 BA7001
IC512 BA7001
IC503 NE555P
IC507,509 AN608P
IC505 MC14070B
IC504 MB14013B
IC506 AN6041
IC508 AN6041
IC501 BA7022
IC515 AV608P
IC4 AN6362
IC3 AN6360
IC5 AN6371
IC6
IC1 AN6310
IC2 HA11703
IC7 TC4053BP
IC8 BU4001B
IC9 MC14025B
IC10 LA6393D
To POWER & SYSCON P7
To SERVO PCB P98
To RF CONVETOR P44
To OPERATION PCB P2
To SLIDE PCB
To PRE AMP PCB P89
To PRE AMP PCB P88
To DEMODULATOR PCB P1
To SLIDE PCB
J108-①
J108-②
J108-③
J108-④
PICTURE CONTROL
EG
EK,EA
COLOR (PAL)
B/W
SECAM
B/W
COLOR
VIDEO OUT
VIDEO IN

VIDEO PCB V1015A501A(6ED)

TR1 to 5,7,10,12,13,15 to 18,23,25,26 ,29,32,34 to 48,501,502,505 to 509 ,512 to 515,517 ------------------ 2SC2603(D,E,F)
TR6,9,11,19,27,28,31,33,503 ---------- 2SA1115(D,E,F)
TR14 ------------------------- 2SC1214(B,C,D)
TR24 ------------------------- 2SB774(R,S,T)
TR20,30 ---------------------- 2SD1010(R,S,T)

B
■●● =PNP TRANSISTOR

B
●|●● =NPN TRANSISTOR

E C B
2SB774
2SC1214
2SD1010

E C B
2SA1115
2SC2603

LOCATION OF COMPONENTS

IC's

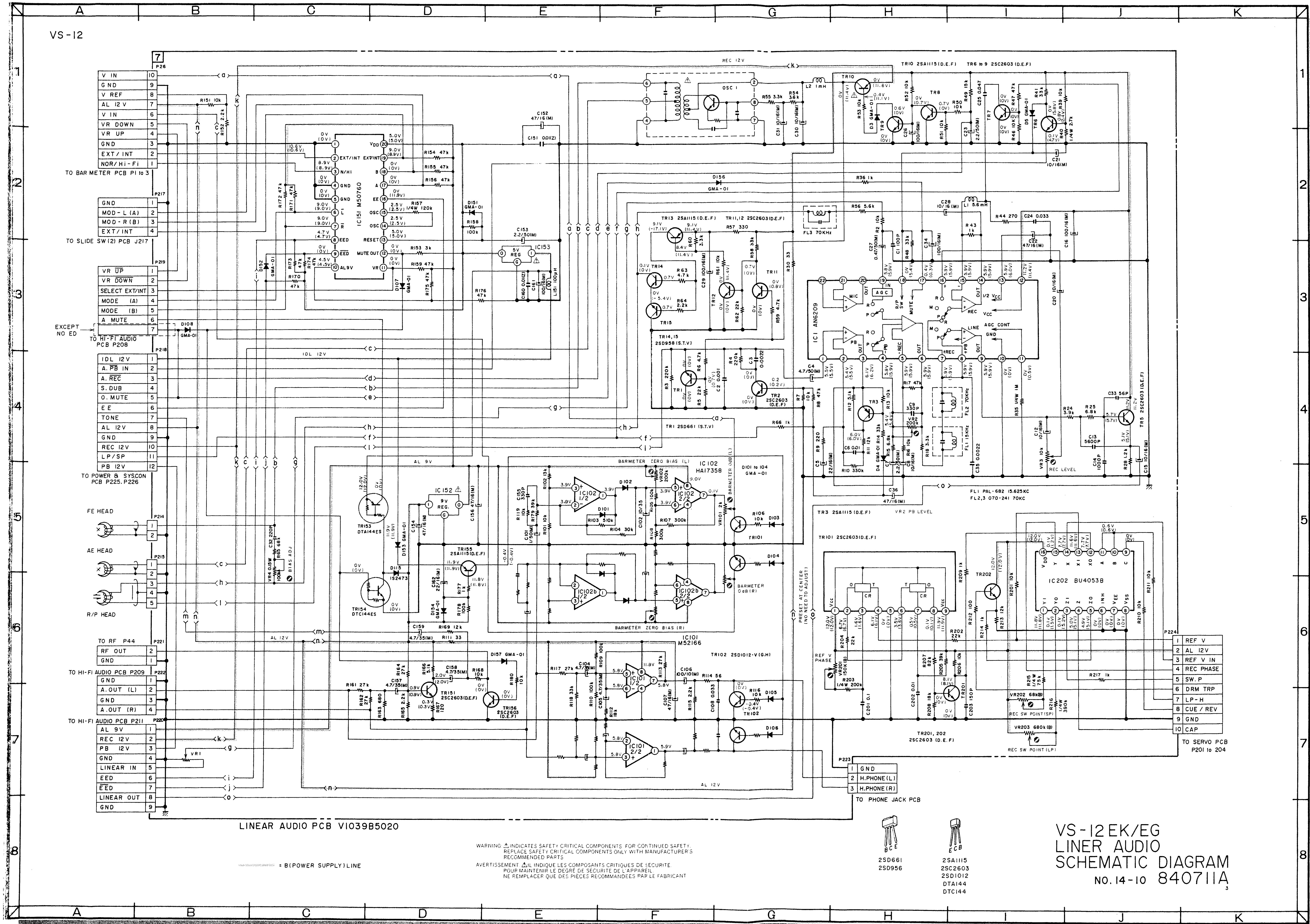
IC1 ---------- D3
IC2 ---------- E4
IC3 ---------- C2
IC4 ---------- D1
IC5,6 -------- E2
IC7 ---------- E4
IC8 ---------- F2
IC9,10 ------- F1
IC501 -------- A3
IC503 -------- A1
IC504,505 ---- A2
IC506 to 509 - B2
IC510 -------- A1
IC512,514 ---- B1
IC515 -------- A3

TR's

TR1,2,4 ------ C3
TR3 ---------- D2
TR5,6 -------- E4
TR7,9 to 12,14,15 -- E3
TR13 --------- F3
TR16 to 18 --- E4
TR19 to 27 --- D4
TR28 --------- F2
TR29,30 ------ E1
TR31 --------- F1
TR32,34 ------ E2
TR33 --------- F2
TR35,36 ------ F1
TR37 --------- C1
TR38,40 ------ C2
TR39 --------- D2
TR41 --------- C1
TR42 --------- E1
TR43 --------- E4
TR44 --------- D4
TR45 to 48 --- C4
TR501 -------- A3
TR502,503 ---- A2
TR505 to 507 - A1
TR508 -------- B1
TR509,512,513 - B2
TR514 -------- B1
TR515 -------- A1
TR517 -------- A2

CONNECTORS

P1 ----------- F4
P15 ---------- F3
P16 ---------- F1
P18 ---------- F4
P20 ---------- F3
P46 ---------- A1
P85 ---------- F2
P86 ---------- F4
P87 ---------- D4
P206 --------- F4


VS-12
7
P26
V IN
GND
V REF
AL 12 V
V IN
VR DOWN
VR UP
GND
EXT/INT
NOR/Hi-Fi
TO BAR METER PCB P1 to 3
P217
GND
MOD-L (A)
MOD-R (B)
EXT/INT
TO SLIDE SW(2) PCB J217
P219
VR UP
VR DOWN
SELECT EXT/INT
MODE (A)
MODE (B)
A MUTE
EXCEPT NO ED
TO HI-FI AUDIO PCB P208
P218
IDL 12V
A.PB IN
A.REC
S.DUB
O.MUTE
EE
TONE
AL 12V
GND
REC 12V
LP/SP
PB 12V
TO POWER & SYSCON PCB P225, P226
FE HEAD
P214
AE HEAD
P215
R/P HEAD
TO RF P44
P221
RF OUT
GND
TO HI-FI AUDIO PCB P209
P222
GND
A.OUT (L)
GND
A.OUT (R)
TO HI-FI AUDIO PCB P211
P220
AL 9V
REC 12V
PB 12V
GND
LINEAR IN
EED
EED
LINEAR OUT
GND
IC151 M50760
IC152 9V REG.
IC153 5V REG
IC1 AN6209
IC102 HA17358
IC101 M52166
IC202 BU4053B
TR10 2SA1115 (D.E.F)
TR6 to 9 2SC2603 (D.E.F)
TR13 2SA1115 (D.E.F)
TR11,12 2SC2603 (D.E.F)
TR14,15 2SD958 (S.T.V)
TR1 2SD661 (S.T.V)
TR2 2SC2603 (D.E.F)
TR3 2SA1115 (D.E.F)
TR5 2SC2603 (D.E.F)
TR101 2SC2603 (D.E.F)
TR102 2SD1012-V (G.H)
TR153 DTA144ES
TR154 DTC144ES
TR155 2SA1115 (D.E.F)
TR151 2SC2603 (D.E.F)
TR156 2SC2603 (D.E.F)
TR201, 202 2SC2603 (D.E.F)
OSC 1
FL3 70KHz
FL2 70KHz
FL1 15KHz
FL1 PAL-682 15.625KC
FL2,3 070-241 70KC
D101 to 104 GMA-01
BARMETER ZERO BIAS (L)
BARMETER ZERO BIAS (R)
BARMETER 0dB (L)
BARMETER 0dB (R)
VR4 BIAS ADJ
VR2 PB LEVEL
VR3 REC LEVEL
VR202 68k(B) REC SW POINT(SP)
VR203 680k(B) REC SW POINT (LP)
REF V PHASE
PRESET AT CENTER (NO NEED TO ADJUST)
P224
REF V
AL 12V
REF V IN
REC PHASE
SW.P
DRM TRP
LP-H
CUE/REV
GND
CAP
TO SERVO PCB P201 to 204
P223
GND
H.PHONE(L)
H.PHONE(R)
TO PHONE JACK PCB
REC 12V
IDL 12V
AL 9V
AL 12V
2SD661
2SD956
2SA1115
2SC2603
2SD1012
DTA144
DTC144

LINEAR AUDIO PCB V1039B5020

= B(POWER SUPPLY) LINE

WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SECURITE. POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL NE REMPLACER QUE DES PIECES RECOMMANDEES PAR LE FABRICANT

VS-12 EK/EG
LINER AUDIO
SCHEMATIC DIAGRAM

NO. 14-10 840711A

3

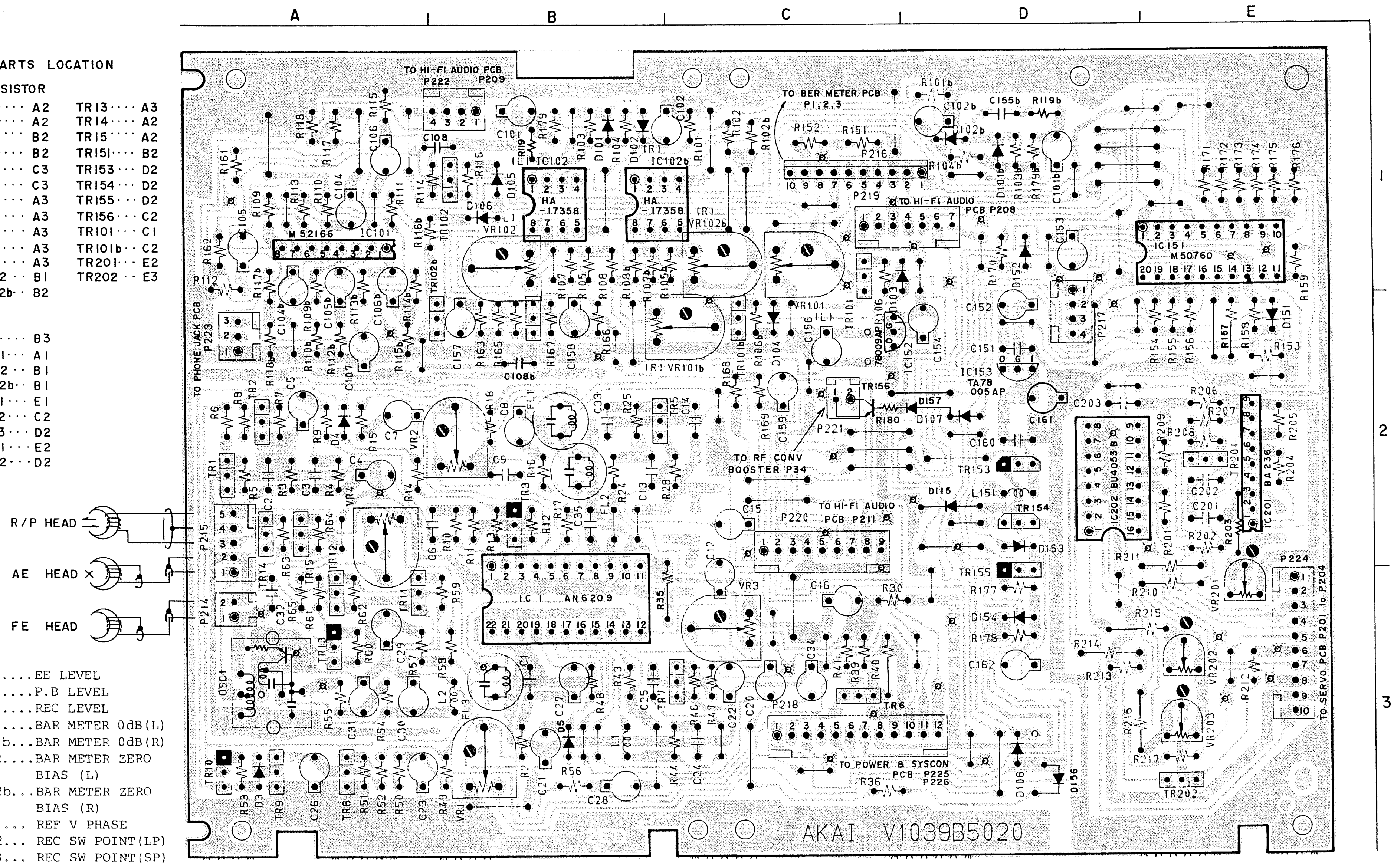
PARTS LOCATION

TRANSISTOR

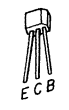
TR1	A2	TR13	A3
TR2	A2	TR14	A2
TR3	B2	TR15	A2
TR5	B2	TR151	B2
TR6	C3	TR153	D2
TR7	C3	TR154	D2
TR8	A3	TR155	D2
TR9	A3	TR156	C2
TR10	A3	TR101	C1
TR11	A3	TR101b	C2
TR12	A3	TR201	E2
TR102	B1	TR202	E3
TR102b	B2		

IC'S

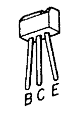
IC1	B3
IC101	A1
IC102	B1
IC102b	B1
IC151	E1
IC152	C2
IC153	D2
IC201	E2
IC202	D2


A
B
C
D
E
1
2
3
R/P HEAD
AE HEAD
FE HEAD
TO HI-FI AUDIO PCB P209
P222
TO BER METER PCB P1,2,3
TO HI-FI AUDIO PCB P208
TO PHONE JACK PCB
P223
TO RF CONV BOOSTER P34
TO HI-FI AUDIO PCB P211
TO POWER & SYSCON PCB P225 P226
TO SERVO PCB P201 to P204
P224
IC1 AN6209
IC101 M52166
HA-17358
IC151 M50760
IC202 BU4053B
IC201 BA236
TA78005AP
AKAI V1039B5020
2ED

VR1......EE LEVEL
VR2......P.B LEVEL
VR3......REC LEVEL
VR101....BAR METER 0dB(L)
VR101b...BAR METER 0dB(R)
VR102....BAR METER ZERO BIAS (L)
VR102b...BAR METER ZERO BIAS (R)
VR201... REF V PHASE
VR202... REC SW POINT(LP)
VR203... REC SW POINT(SP)



2SA1115
2SC2603
2SD1012
DTA114ES
DTC114ES



2SD661
2SD958

TR1 ------------------- 2SD661
TR2,5 to 9,11,12,101,101b
201,202,151,156 ----- 2SC2603
TR3,10,13,155 --------- 2SA1115
TR14,15 ------------- 2SD958
TR153 --------------- DTA114ES
TR154 --------------- DTC114ES
TR102,102b ---------- 2SD1012

LINEAR AUDIO PCB V1039B5020 (2ED)

B ■●● PNP TRANSISTOR

B ●●● NPN TRANSISTOR

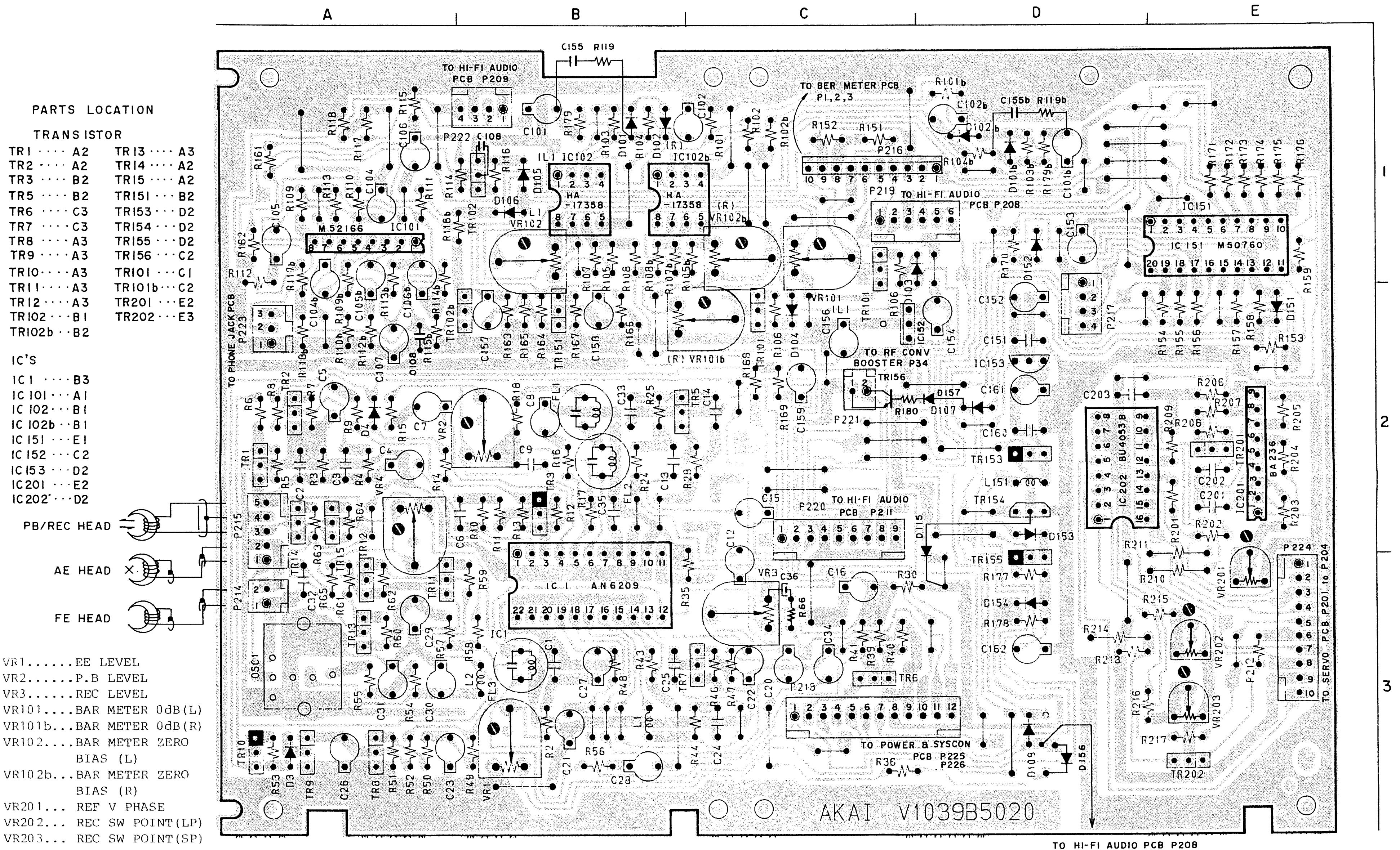
PARTS LOCATION

TRANSISTOR

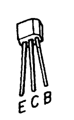
TR1	A2	TR13	A3
TR2	A2	TR14	A2
TR3	B2	TR15	A2
TR5	B2	TR151	B2
TR6	C3	TR153	D2
TR7	C3	TR154	D2
TR8	A3	TR155	D2
TR9	A3	TR156	C2
TR10	A3	TR101	C1
TR11	A3	TR101b	C2
TR12	A3	TR201	E2
TR102	B1	TR202	E3
TR102b	B2		

IC'S

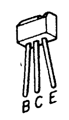
IC1	B3
IC101	A1
IC102	B1
IC102b	B1
IC151	E1
IC152	C2
IC153	D2
IC201	E2
IC202	D2


A
B
C
D
E
1
2
3
PB/REC HEAD
AE HEAD
FE HEAD
C155 R119
TO HI-FI AUDIO PCB P209
P222
TO BER METER PCB P1,2,3
TO HI-FI AUDIO PCB P208
TO PHONE JACK PCB
P223
TO RF CONV BOOSTER P34
TO HI-FI AUDIO PCB P211
TO POWER & SYSCON PCB P225 P226
TO SERVO PCB P201 to P204
P224
IC1 AN6209
M52166
HA-17358
IC151 M50760
IC202 BU4053B
BA236
AKAI V1039B5020
TO HI-FI AUDIO PCB P208

VR1......EE LEVEL
VR2......P.B LEVEL
VR3......REC LEVEL
VR101....BAR METER 0dB(L)
VR101b...BAR METER 0dB(R)
VR102....BAR METER ZERO BIAS (L)
VR102b...BAR METER ZERO BIAS (R)
VR201... REF V PHASE
VR202... REC SW POINT(LP)
VR203... REC SW POINT(SP)



2SA1115
2SC2603
2SD1012
DTA114ES
DTC114ES



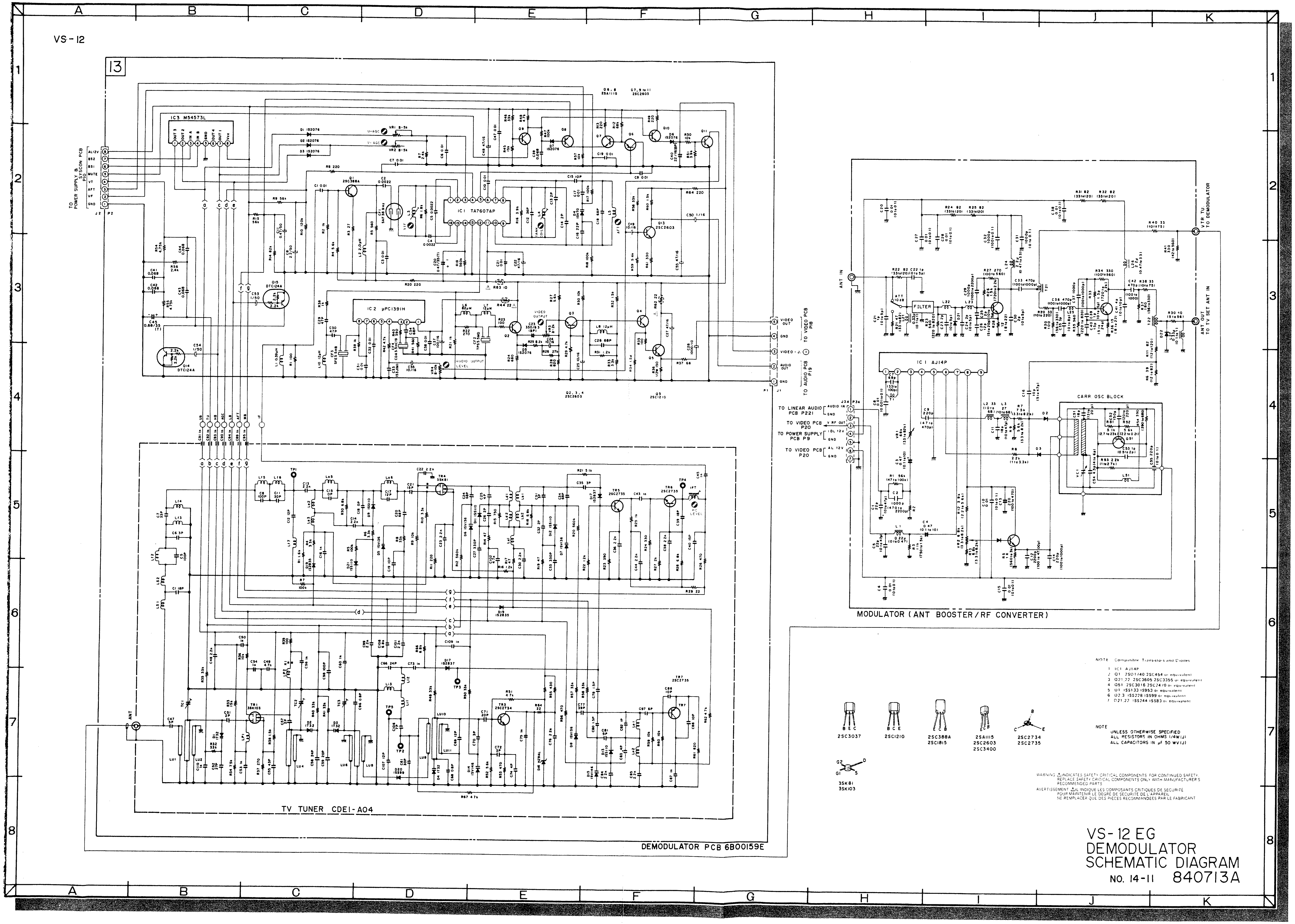
2SD661
2SD958

TR1 ------------------- 2SD661
TR2,5 to 9,11,12,101,101b
201,202,151,156 ----- 2SC2603
TR3,10,13,155 --------- 2SA1115
TR14,15 ------------- 2SD958
TR153 --------------- DTA114ES
TR154 --------------- DTC114ES
TR102,102b ---------- 2SD1012

LINEAR AUDIO PCB V1039B5020

B ■●● PNP TRANSISTOR

B ●●● NPN TRANSISTOR


VS-12
13
IC3 M54573L
IC1 TA7607AP
IC2 µPC1391H
TO POWER SUPPLY B SYSCON PCB P10
J2 P2
AL12V
BS2
BS1
MUTE
VT
AFT
VF
GND
VIDEO OUT
GND
VIDEO-J
AUDIO OUT
GND
TO VIDEO PCB P18
TO AUDIO PCB P19
P1 J1
VIDEO OUTPUT
AUDIO OUTPUT LEVEL
ANT
TV TUNER CDE1-A04
DEMODULATOR PCB 6B00159E
ANT IN
VTR TU TO DEMODULATOR
ANT OUT TO TV SET ANT IN
ATT
FILTER
IC 1 AJ14P
CARR OSC BLOCK
J34 P34
TO LINEAR AUDIO PCB P221
AUDIO IN
GND
TO VIDEO PCB P20
V RF OUT
TO POWER SUPPLY PCB P9
IOL 12V
GND
TO VIDEO PCB P20
AL 12V
GND
MODULATOR (ANT BOOSTER/RF CONVERTER)
B E C
2SC3037
B C E
2SC1210
2SC388A
2SC1815
2SA1115
2SC2603
2SC3400
B
C
E
2SC2734
2SC2735
G2
D
G1
S
3SK81
3SK103
A
B
C
D
E
F
G
H
I
J
K
1
2
3
4
5
6
7
8

NOTE Compatible Transistors and Diodes

1 IC1 AJ14P
2 Q1 2SD1740 2SC454 or equivalent
3 Q21,22 2SC3605 2SC3355 or equivalent
4 Q51 2SC3016 2SC2470 or equivalent
5 D1 1SS133 1S953 or equivalent
6 D2,3 1SS228 1SS99 or equivalent
7 D21,22 1SS244 1SS83 or equivalent

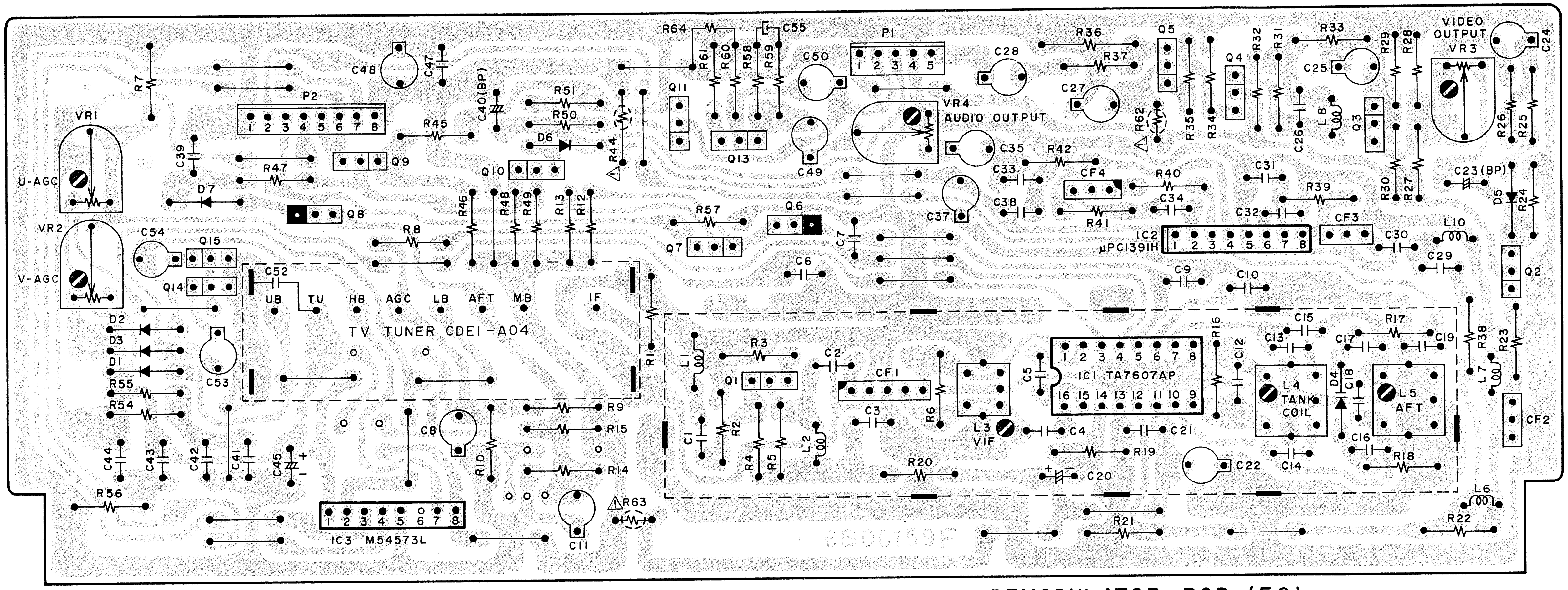
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN µF 50 WV(J)

WARNING ⚠INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

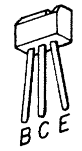
AVERTISSEMENT ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SECURITÉ POUR MAINTENIR LE DEGRÉ DE SECURITÉ DE L'APPAREIL NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

VS-12 EG
DEMODULATOR
SCHEMATIC DIAGRAM

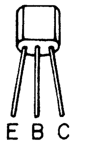
NO. 14-11 840713A


VR1
U-AGC
VR2
V-AGC
R7
C39
C48
C47
P2
1 2 3 4 5 6 7 8
R45
Q9
R47
D7
Q8
C40(BP)
R51
R50
D6
Q10
R44
R46
R48
R49
R13
R12
R8
C54
Q15
Q14
C52
UB
TU
HB
AGC
LB
AFT
MB
IF
TV TUNER CDE1-A04
D2
D3
D1
C53
R55
R54
C44
C43
C42
C41
C45
R56
IC3 M54573L
C8
R10
R9
R15
R14
C11
R63
R1
R64
R61
R60
R58
R59
C55
Q11
Q13
C50
C49
R57
Q7
Q6
C7
C6
P1
1 2 3 4 5
VR4
AUDIO OUTPUT
C28
C27
C35
C33
C38
C37
R42
CF4
R40
R41
C34
R36
R37
R62
R35
R34
Q5
Q4
R32
R31
R33
C25
C26
L8
Q3
R29
R28
VIDEO OUTPUT
VR3
C24
R26
R25
R30
R27
C23(BP)
D5
R24
C31
R39
C32
CF3
C30
L10
C29
Q2
IC2
μPC1391H
1 2 3 4 5 6 7 8
C9
C10
L1
R3
Q1
C2
CF1
C3
C1
R2
R4
R5
L2
R6
L3
VIF
R20
C5
IC1 TA7607AP
1 2 3 4 5 6 7 8
16 15 14 13 12 11 10 9
C4
C21
R19
C20
R16
C12
C22
C13
C15
L4
TANK COIL
D4
C18
C17
R17
C19
L5
AFT
C16
R18
C14
R38
R23
L7
CF2
L6
R21
R22
6B00159F

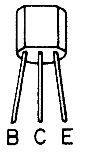
DEMODULATOR PCB (EG)



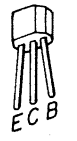
DTC124A



2SC388A



2SC1210



2SA1115
2SC2603

Q1 ------------ 2SC388A
Q2,3,4,7,9,10,11,13 -- 2SC2603(D,E)
Q5 ------------ 2SC1210(D,E)
Q6,8 ---------- 2SA1115(D,E)
Q14,15 -------- DTC124A

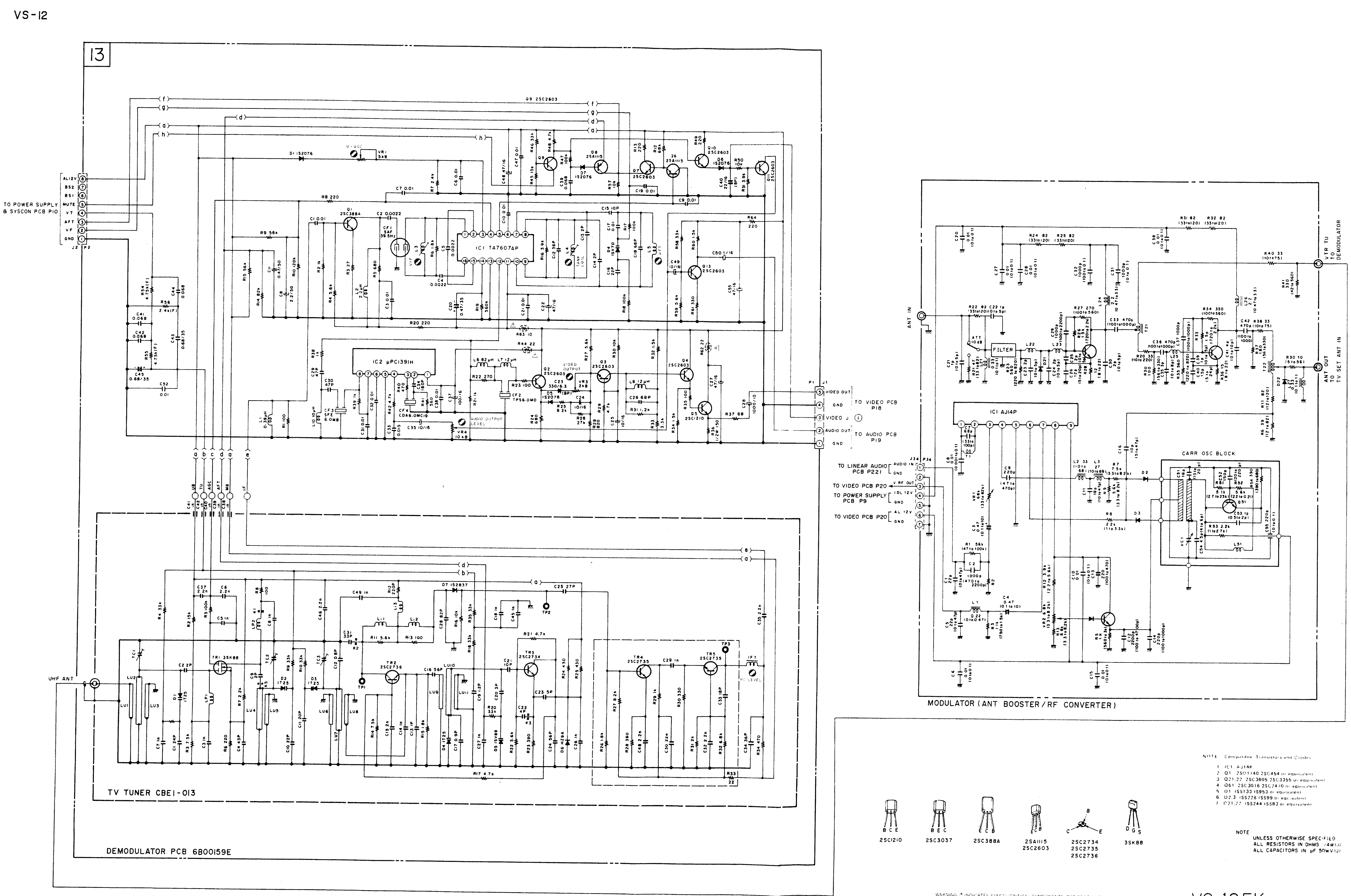
■●● = PNP TRANSISTOR
B

●●● = NPN TRANSISTOR
B

WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

VS-12


13
TO POWER SUPPLY & SYSCON PCB P10
AL12V
BS2
BS1
MUTE
VT
AFT
VF
GND
J2 P2
IC1 TA7607AP
IC2 μPC1391H
Q1 2SC388A
Q9 2SC2603
Q2 2SC2603
Q3 2SC2603
Q4 2SC2603
Q5 2SC1210
Q7 2SC2603
Q8 2SA1115
Q10 2SC2603
Q11 2SC2603
Q13 2SC2603
VIDEO OUT
GND
VIDEO
AUDIO OUT
TO VIDEO PCB P18
TO AUDIO PCB P19
VIDEO OUTPUT
AUDIO OUTPUT LEVEL
TV TUNER CBE1-013
UHF ANT
TR1 3SK88
TR2 2SC2736
TR3 2SC2734
TR4 2SC2735
TR5 2SC2735
TP1
TP2
TP3
IFT
DEMODULATOR PCB 6800159E
ANT IN
ANT OUT TO TV SET ANT IN
VTR TU TO DEMODULATOR
FILTER
IC1 AJ14P
TO LINEAR AUDIO PCB P221
TO VIDEO PCB P20
TO POWER SUPPLY PCB P9
TO VIDEO PCB P20
J34 P34
CARR OSC BLOCK
MODULATOR (ANT BOOSTER/RF CONVERTER)
B C E
2SC1210
B E C
2SC3037
E C B
2SC388A
E C B
2SA1115
2SC2603
B
C
E
2SC2734
2SC2735
2SC2736
D
G
S
3SK88

NOTE Compatible Transistors and Diodes

1 IC1 AJ14P
2 Q1 2SD1740 2SC454 or equivalent
3 Q21,22 2SC3605 2SC3355 or equivalent
4 Q51 2SC3016 2SC2470 or equivalent
5 D1 1SS133 1S953 or equivalent
6 D2,3 1SS228 1SS99 or equivalent
7 D21,22 1SS244 1SS83 or equivalent

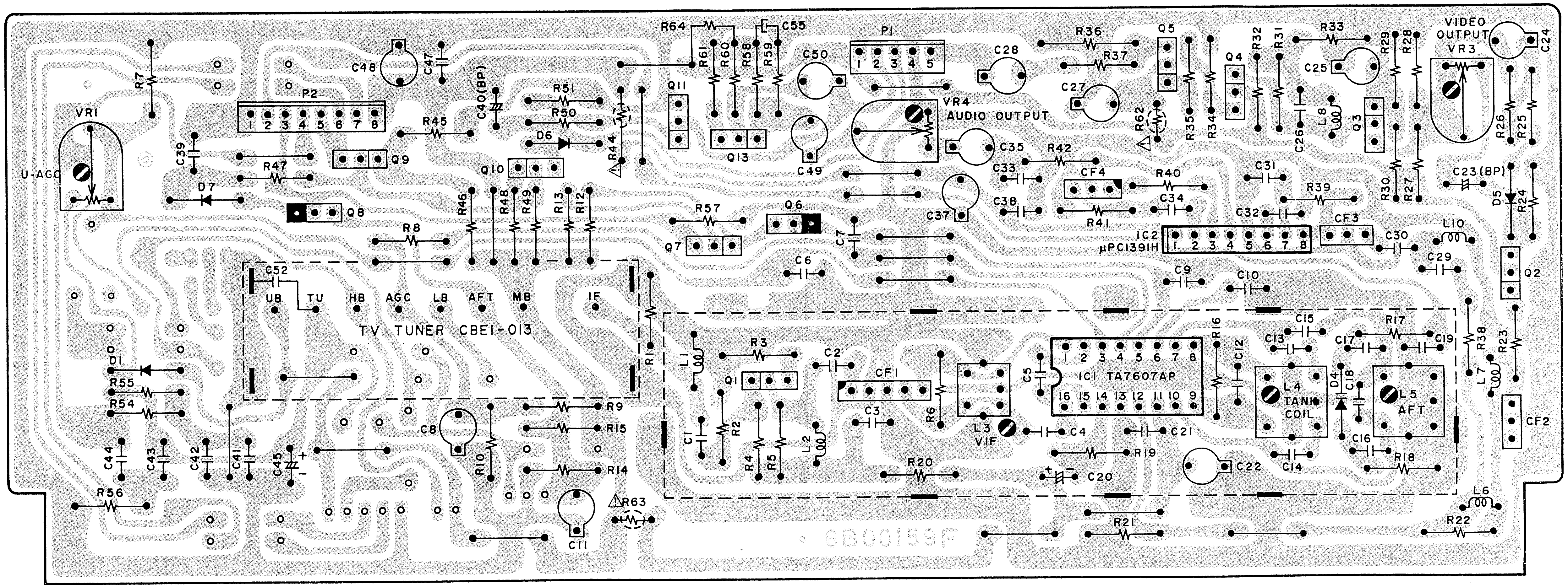
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN μF 50WV(J)

WARNING ⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

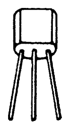
AVERTISSEMENT ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SECURITE POUR MAINTENIR LE DEGRÉ DE SECURITE DE L'APPAREIL NE REMPLACER QUE DES PIECES RECOMMANDEES PAR LE FABRICANT

VS-12EK
DEMODULATOR
SCHEMATIC DIAGRAM

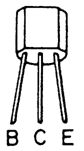
NO.14-12 840714A


R64
C55
P1
1 2 3 4 5
R36
Q5
R33
VIDEO OUTPUT
VR3
C24
R61
R60
R58
R59
C50
C28
R37
Q4
R32
R31
C25
R29
R28
C48
C47
R7
P2
1 2 3 4 5 6 7 8
C40(BP)
R51
R50
Q11
C27
VR4
AUDIO OUTPUT
R62
R35
R34
C26
L8
Q3
R26
R25
VR1
U-AGC
C39
R45
D6
R44
Q13
C49
C35
R42
CF4
R40
C31
R39
C23(BP)
R47
Q9
Q10
C33
C38
C34
R41
C32
R30
R27
D5
R24
D7
Q8
R46
R48
R49
R13
R12
R57
Q6
C37
IC2
μPC1391H
CF3
C30
L10
C29
Q2
R8
Q7
C7
C6
C9
C10
C52
UB
TU
HB
AGC
LB
AFT
MB
IF
TV TUNER CBE1-013
R1
R16
C15
R17
C13
C17
C19
R38
R23
L1
R3
C2
C5
1 2 3 4 5 6 7 8
IC1 TA7607AP
16 15 14 13 12 11 10 9
C12
D4
C18
L4
TANK COIL
L5
AFT
L7
D1
R55
R54
Q1
CF1
R6
CF2
R9
R15
C8
C3
L3
VIF
C4
C21
C1
R2
L2
R4
R5
R19
C16
R18
C44
C43
C42
C41
C45
R10
R14
R20
C20
C22
C14
R56
R63
C11
6B00159F
R21
L6
R22

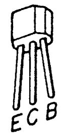
DEMODULATOR PCB (EK)


E B C

2SC388A


B C E

2SC1210


E C B

2SA1115
2SC2603

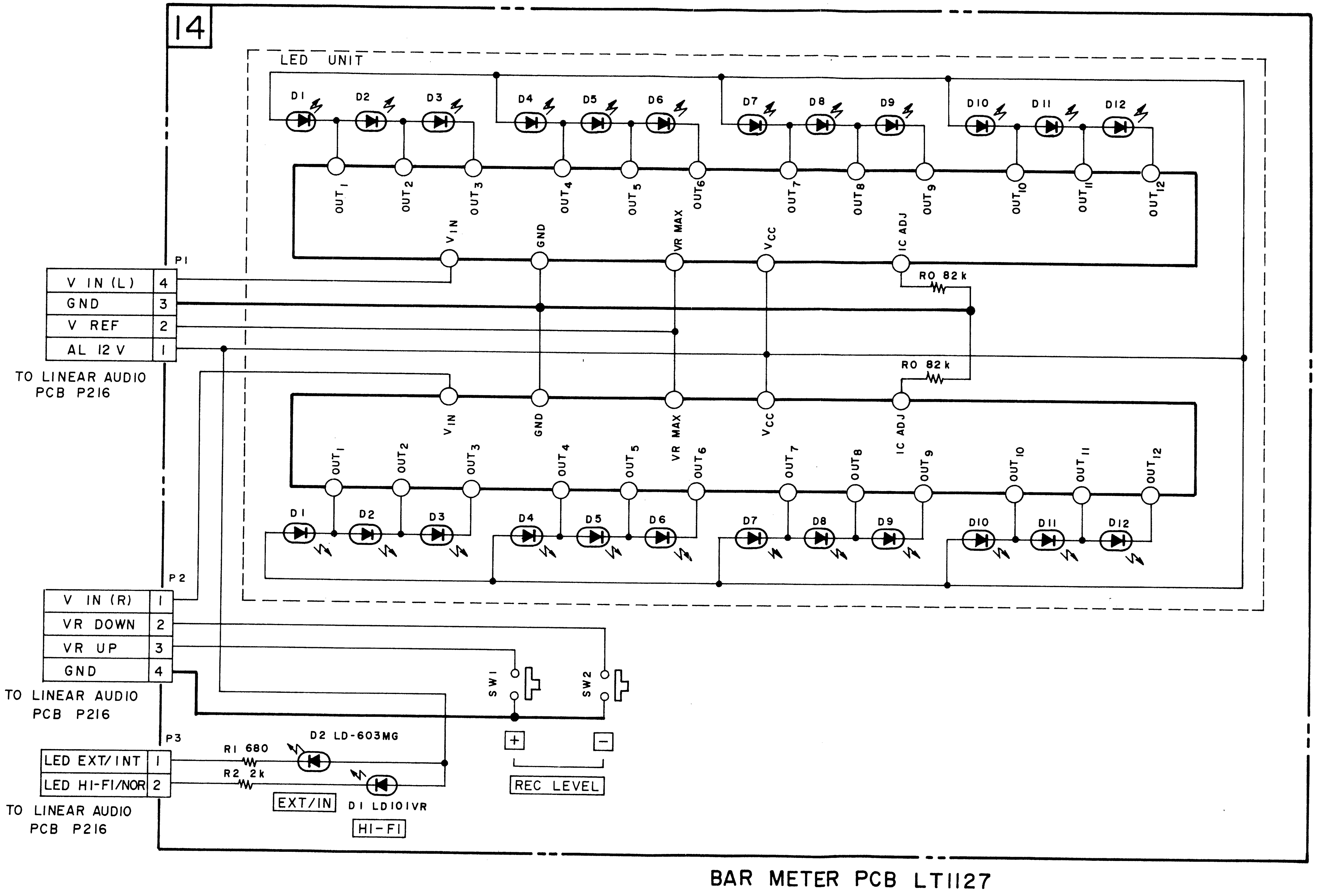
Q1 ———————————— 2SC388A
Q2,3,4,7,9,10,11,13 —— 2SC2603 (D,E)
Q5 ———————————— 2SC1210 (D,E)
Q6,8 —————————— 2SA1115 (D,E)

■ ● ● = PNP TRANSISTOR
B

● ● ● = NPN TRANSISTOR
B

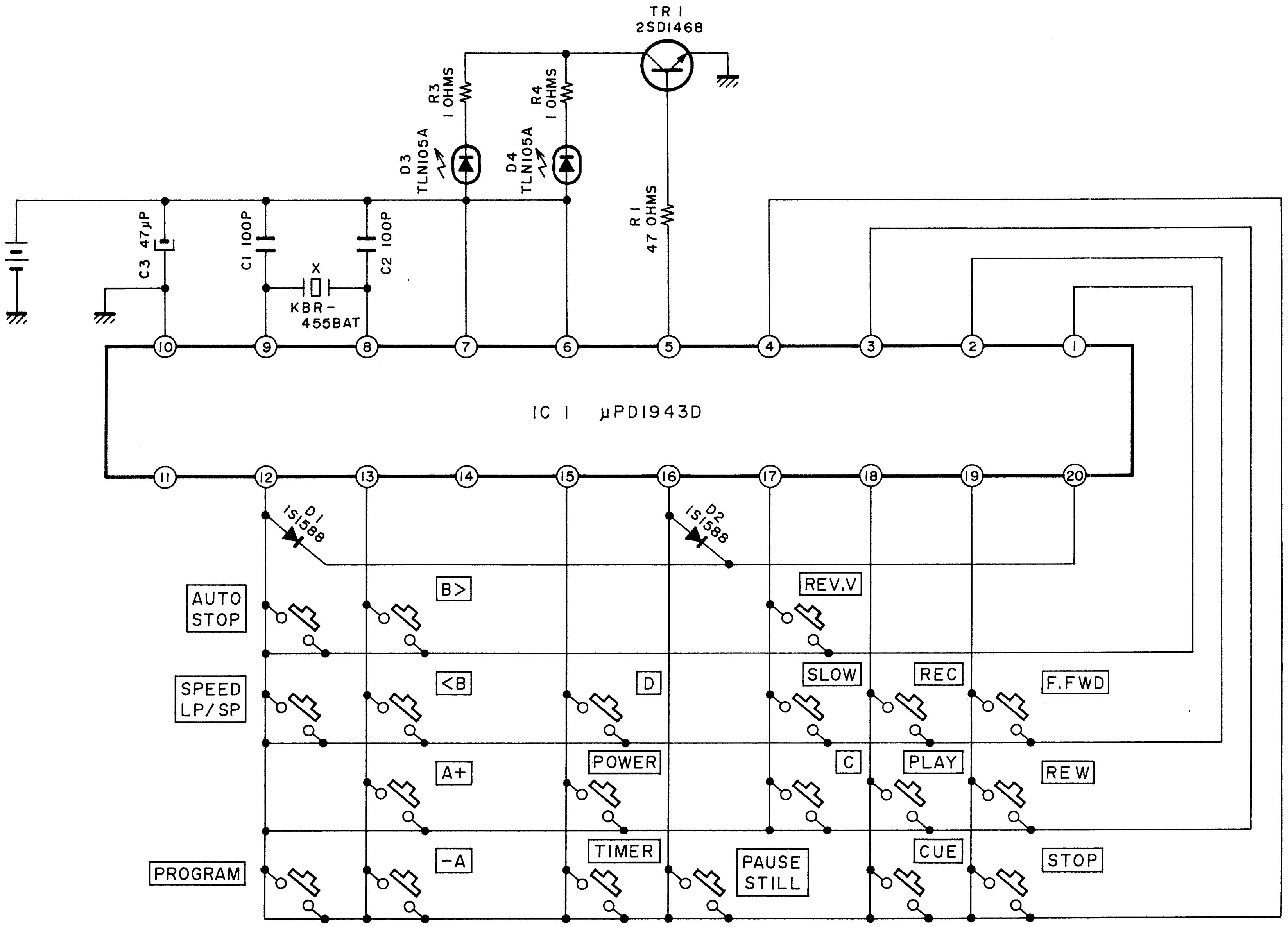
WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

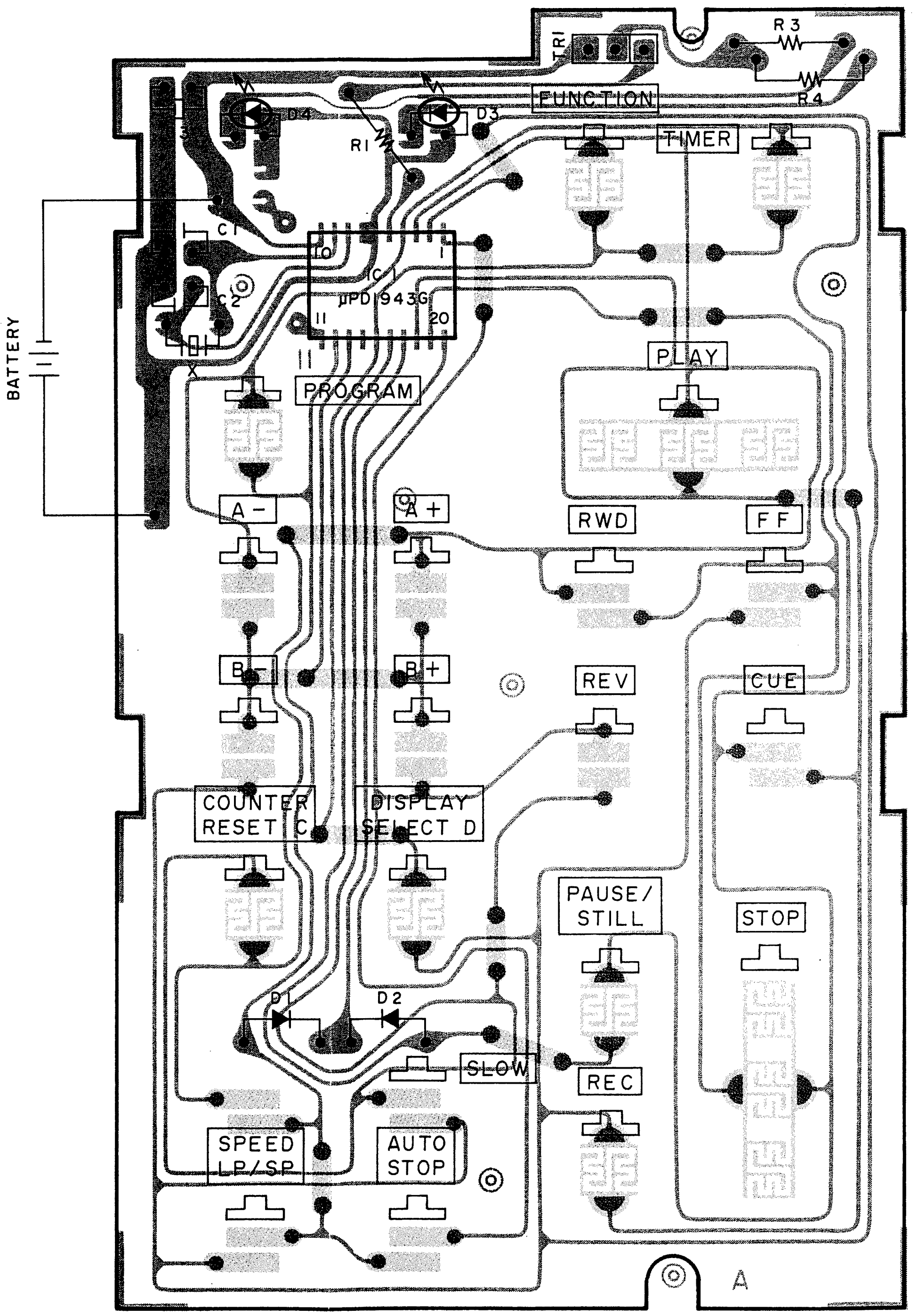

14
LED UNIT
D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12
OUT1 OUT2 OUT3 OUT4 OUT5 OUT6 OUT7 OUT8 OUT9 OUT10 OUT11 OUT12
VIN
GND
VR MAX
VCC
IC ADJ
R0 82k
R0 82k
P1
V IN (L) 4
GND 3
V REF 2
AL 12 V 1
TO LINEAR AUDIO PCB P216
P2
V IN (R) 1
VR DOWN 2
VR UP 3
GND 4
TO LINEAR AUDIO PCB P216
SW1
SW2
+
−
REC LEVEL
P3
LED EXT/INT 1
LED HI-FI/NOR 2
TO LINEAR AUDIO PCB P216
R1 680
R2 2k
D2 LD-603MG
EXT/IN
D1 LD101VR
HI-FI
BAR METER PCB LT1127

VS-12EK/EG
BAR METER
SCHEMATIC DIAGRAM

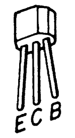
NO.14-13 840712A(A3)


TR1
2SD1468
R3
1 OHMS
R4
1 OHMS
D3
TLN105A
D4
TLN105A
R1
47 OHMS
C3 47μP
C1 100P
C2 100P
X
KBR-455BAT
IC1 μPD1943D
10
9
8
7
6
5
4
3
2
1
11
12
13
14
15
16
17
18
19
20
D1
1S1588
D2
1S1588
AUTO STOP
B>
REV.V
SPEED LP/SP
<B
D
SLOW
REC
F.FWD
A+
POWER
C
PLAY
REW
PROGRAM
-A
TIMER
PAUSE STILL
CUE
STOP

CUE : QUICK FINDER ▷▷
REV.V : QUICK FINDER ◁◁


TR1
R3
R4
FUNCTION
D4
D3
R1
TIMER
C1
C2
IC1
μPD1943G
10
1
11
20
X
BATTERY
PLAY
PROGRAM
A −
A +
RWD
FF
B −
B +
REV
CUE
COUNTER RESET C
DISPLAY SELECT D
PAUSE/STILL
STOP
D1
D2
SLOW
REC
SPEED LP/SP
AUTO STOP
A

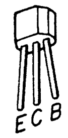
REMOCON TRANSMITTER PCB



2SD1468

RC-T12
REMOCON TRANSMITTER
SCHEMATIC DIAGRAM

NO. 14-14 840715A (A4)



2SD1468

TR1 ---- 2SD1468